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DERMATO-PATHOLOGIA;

OR,

PRACTICAL OBSERVATIONS,

FROM SOME NEW THOUGHTS ON

DISEASES OF THE TRUE SKIN,

AND ITS EMANATIONS,

THE

RETE MUCOSUM AND CUTICLE.

DERMATO-PATHOLOGY
OR
PRACTICAL OBSERVATIONS,
FROM SOME NEW THOUGHTS ON
THE PATHOLOGY AND PROXIMATE CAUSE
OF
DISEASES OF THE TRUE SKIN
AND ITS EMANATIONS,
THE RETE MUCOSUM AND CUTICLE.
WITH AN APPENDIX CONTAINING
FURTHER OBSERVATIONS
ON THE INFLUENCE OF THE PERSPIRABLE FLUID IN
THE PRODUCTION OF ANIMAL HEAT;
AND REMARKS ON
THE LATE THEORIES OF SCURVY;
WITH THE PARTICULAR VIEW OF
Recommending the OAK BARK, as a New Marine Antiscorbutic;
and as a probable Antiseptic in some other Putrescent Disorders.

BY
SEGUIN HENRY JACKSON, M.D.

MEMBER OF THE ROYAL MEDICAL SOCIETY OF EDINBURGH,
PHYSICIAN TO THE WESTMINSTER GENERAL DISPENSARY, AND TO THE
INFIRMARY OF SAINT GEORGE'S, HANOVER-SQUARE.

LONDON:

PRINTED FOR THE AUTHOR,

BY H. REYNELL, PICCADILLY, AND SOLD BY J. ROBSON, NEW BOND-
STREET; AND J. JOHNSON, ST. PAUL'S CHURCH-YARD.

“ Former hypothesefes have been particularly hurtfull to the practice of phyfic, in that they have withdrawn our attention from, and prevented our study of, the motions of the animal system, upon the state of which the phænomena of diseases do more certainly and generally depend. Whoever, then, shall consider the almost total neglect of the state of the moving powers of the animal body, and the prevalence of an hypothetical humoral pathology, so conspicuous in every part of the BOERHAAVIAN system, must be convinced of its very great defects, and perceive the necessity of attempting one more correct.”

CULLEN.

“ Observe how System into System runs:”

* * * * *

“ What shocks one Part, will edify the rest,

“ Nor with one System can we all be blest.”

POPE.

TO THE CRITICAL READER.

IT is apprehended, that the author will be thought to have taken too great a liberty, in using the term, NEW THOUGHTS, in the present publication. He thinks himself, that he has been justified in the application of it, as far as his own acquaintance with the observations of even late writers on impetiginous disorders goes; and he shall not so much regret their being proved not NEW, as their being not thought JUST, in the opinion of the more learned CRITIC.

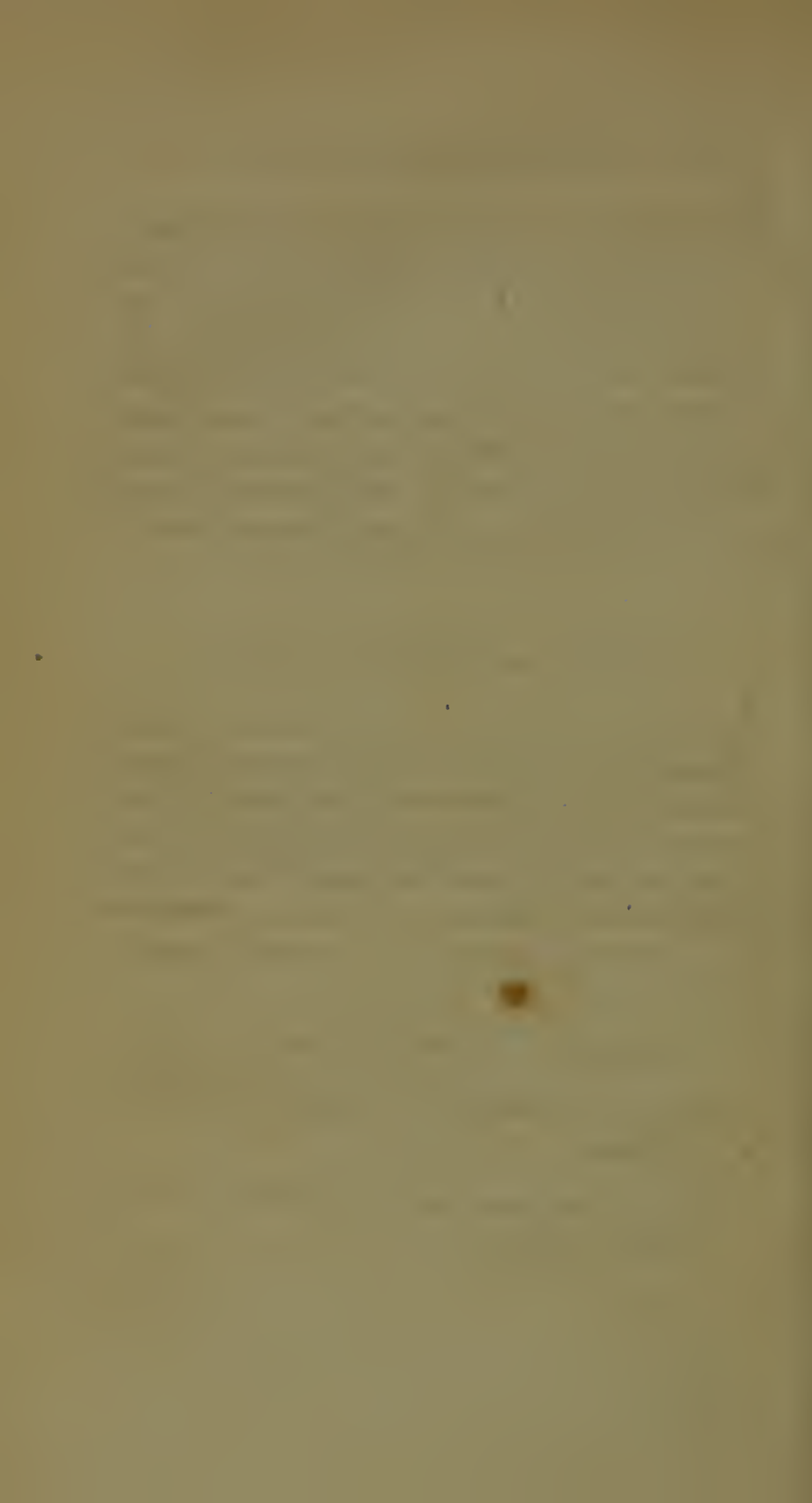
TO THE ANATOMICAL READER.

IF the term EMANATION should, also, particularly displease the ANATOMIST, as applied to the rete mucosum and cuticle, from its having appeared to the author to express well the nature and origin of those substances, as he has conceived them to spring from the cutis vera, the application of it will be best defended by the following quotation from JOHNSON'S dictionary.

“Emanation, *n. s.* Emanatio, *Lat.*

1. The act of issuing or proceeding from any other substance.
2. That which issues from another substance; an effluence; effluvium.”

FOL. EDIT.



TO

SAMUEL FOART SIMMONS, M. D.

FELLOW OF THE ROYAL SOCIETY, AND SOCIETY OF
ANTIQUARIES IN LONDON; OF THE ROYAL ACADEMY OF PHYSICIANS AT MADRID; AND OF
THE MEDICAL SOCIETIES OF PARIS AND
EDINBURGH: CORRESPONDING MEMBER
OF THE ACADEMIES OF SCIENCES AT
PARIS AND MONTPELLIER; PHYSICIAN TO SAINT LUKE'S
HOSPITAL, IN LONDON,
&c.

DEAR SIR,

FROM the very
obliging manner, in which you
gave your consent to my dedicating the following sheets to you,
a I think

I think I may take the liberty to conclude, that the occasion afforded us a mutual satisfaction. Each of us seemed to feel in the double capacity of giver and receiver. Friends can never commit acts of kindness to one another, without its always becoming a question, Who enjoys the greatest satisfaction?

I wish my mind felt more conscious than it does, that the following pathological observations would become, in every respect, deserving of your countenance and approbation. They are built upon a physiological doctrine, which many may probably think would
have

have better accorded with the experience of a longer life; but since you can command, as my colleague at the WESTMINSTER GENERAL DISPENSARY, the same opportunities, which have afforded to me a reasonable confirmation of the opinion I have long taken up, respecting chiefly the chronic diseases of the human skin, it will be very easy for you, in no great extent of time, to be yourself convinced of the validity, or the error, of the doctrine.

If they should, however, fail of improving the present practice in impetiginous affections, I at least indulge the hope, that they

a 2

will

will be thought to explain, in a better manner, the principle, on which some parts of the old treatment of cutaneous diseases succeeded. It is coming nearer, I trust, to the true knowledge of cause and effect; and it is, in my humble opinion, more consonant with the medical improvements and discoveries of the present century.

All theories have met with their supporters, and their oppugners. Facts are more stubborn things, and want not the aid of reasoning to hold them up. I am not without my hope, that facts will support the theory I have advanced,
and

and that they will even become daily more and more numerous in its support, when the object of this volume is generally known, and the subject is seriously investigated.

If a strong partiality to the doctrine, and to whatever may appear connected with the anatomy, and the physiology, of the human skin, has rendered me too confident of its meeting with success, and with at least the attention, if not the approbation, of medical practitioners, and has, at the same time, made me blind to the errors, and perhaps inconsistencies, of my own system, I must request, that you,

DEAR

DEAR SIR, and my readers, will
exclaim with me,

Eheu ! “ Humanum est errare ;”

and that you, and they, will overlook
its deficiencies with candour.

But although a short period may
convince me of the imperfections
of my own pathology, and of my
reasoning on impetiginous diseases,
yet no length of time will ever
deprive me of the satisfaction,
which is at present afforded to
me, by the opportunity of thus
publicly acknowledging the great
pleasure I enjoy in your society and
friendship, and in the anticipation
of

of a long continuance of them;
and of assuring you,

DEAR SIR,

That I shall ever remain,

Most cordially,

Your very sincere friend,

S. H. JACKSON.

HANOVER-STREET,
HANOVER-SQUARE,
November 9, 1792.

NOTE.

NOTE.

The volume of MEDICAL FACTS and OBSERVATIONS, referred to at page 170 in this work, is the third, lately published.

P R E F A C E.

TO THE READER.

THE compiler of the periodical work, entitled the WORLD, when speaking of the various qualities of an author's mind and heart, and of the difficulties and disappointments of that hazardous, and too often unenviable, avocation, has very shrewdly observed, that what the apostle says of CHARITY, may as truly be said of an AUTHOR: "*He suffereth long, and is kind;—he beareth all things;—he hopeth all things;—endureth all things.*"

Such a man, no doubt, an author would be, if he always consulted his own comfort, and his own interest; but such he cannot be easily, and when

he pleases. His ENDURANCE comes only with his experience and riper years; for his increasing knowledge of the world teaches him, not only the necessity, but the prudence, of a meek spirit.

His HOPE, on the contrary, commences with his earliest efforts, and will in all probability lessen, as his years increase. Yet, without some hope, he could not at any time become the bold adventurer, in the wide field of public approbation, or hazard his reputation, as a writer, with little more than the view of benefit to his fellow-creatures.

His MEEKNESS is often learnt in the school of adversity, and is very important to him, at any period of life, after an unsuccessful attempt; for by it alone he is enabled to endure the mortification of a defeat, and to bear with his disappointment as an author, in the joint concern of credit to himself, and utility to the public: for there are many critics, yet but few kind judges.

He ought not, however, in the author's humble opinion, to be dismayed from publishing his sentiments, if his mind is forcibly impressed with the idea of doing a public benefit. When he has had the approbation of one or two sensible readers, it
ought

ought to arm him, at all points, to bear with charity the censureable reflections of the majority; for among the multitude there must be many minds. Distinct from all the other rights of mankind, the judgement feels itself most independent, and when it does not too hastily and partially condemn, an author ought to submit to its opinion with firmness, and complain with moderation of its decision.

Let it be remembered by every one, who has already added, or who wishes to add, his labours to the common stock of publications, that authors are apt, in general, to be too partial to their own productions, thereby hazarding the wreck of their reputation, on the rock of vanity and self-conceit. And yet it may be considered as a reasonable weakness of the human mind, a justifiable partiality, because authors are more likely to be impressed with the weight and truth of their own observations, as the natural consequence of their long habit of having cautiously considered them, than any reader can be supposed to feel on a first, or even second, perusal, particularly if the subject be quite new to him.

The idea giving rise to the following thoughts,
on the pathology and proximate cause of cutaneous
b 2 diseases,

diseases, first engaged the attention of the author, when he was called upon in the year 1777 to prepare a paper, to be read before the *royal* medical society at EDINBURGH. Soon after which DR. SAMUEL BYAM ÁTHILL, of ANTIGUA, his respected friend and cotemporary at the university, did him the honour of noticing it, in the following passage of his inaugural dissertation.

“ In affectibus cutaneis diversis, five leprosis five
 “ herpeticis, balneum frigidum summis laudibus
 “ multi extulerunt. Apud hodiernos autem in vi-
 “ tiis hujusmodi parum tantum adhibetur, et, si
 “ illis, qui hæc genera morborum a materiâ mor-
 “ bificâ ad superficiem delata proficisci contendunt,
 “ fides est habenda, summæ etiam noxæ fore suspi-
 “ caremur. Si vero opinio, quam, in dissertatione
 “ coram societate medica edinensi nuper lecta, pro-
 “ posuerit amicus meus S. H. JACKSON, M. D. quam-
 “ que forsitan brevi in vulgus edet,* fundamento
 “ stabili innitatur, balneum frigidum in affectus
 “ hujusmodi tutum et efficax esse comperiemur. Illa
 “ in dissertatione, magnam saltem affectuum cutis
 “ partem

* The author at that time had an intention of making his opinion known, through the medium of a respectable periodical publication.

“ partem a statu debilitatis vasorum superficiei cor-
 “ poris extremorum proficisci, contendit auctor:
 “ atque multa argumenta probandi consilio ingeniose
 “ in medium protulit. Non vero nostrum est,
 “ hanc in præsentia doctrinam excutere. Igitur
 “ tantum notabimus experientiam futuram solam,
 “ utram hæc medendi ratio necne conveniat, posse
 “ demonstrare.”*

The author has, since that distant period, been
 deterred by many considerations, from making them
 public, entirely *at the first* from feeling the impor-
 tance and difficulty of the subject, and a diffidence
 in consequence of them, which he *then* found in-
 surmountable. But while he has been gradually
 advancing in the attainment of a more intimate
 practical acquaintance with the various diseases,
 which afflict the external surface of the human body,
 and has, at the same time, become better informed
 of the many embarrassing opinions, at different times
 promulgated by the numerous authors, who have
 written on the subject, some on particular, others
 on the general, diseases of the skin, all of whom,
 in the opinion of the medical men who have stu-
 died

* Exercitatio therapeutica inauguralis de usu aquæ frigidæ
 externo. EDINBURGI, 1778. Sept. non.

died them, subscribe to the difficulty of explaining the nature of, as well as successfully treating, this class of disorders, his inclination to divulge his thoughts has been annually gaining new strength, untill he has brought his mind to think, that he should be criminal, if he withheld them, any longer, from the criticizing judgement of professional men.

The author, therefore, requests his reader to consider the following sheets, as holding out an humble effort to be of use to mankind, and it will rejoice him much, if he should in time discover, that posterity will in the end be benefited by his early reflections on the subject; for it must still require the united labour and observations of many experienced practitioners, to convince a cautious age, that a sure and solid advantage may be derived from any doctrine, which carries with it the appearance of novelty. The author cannot, on that account, presume to expect very soon to see the old method of treating cutaneous diseases, as far as it is connected with the old pathology of them, generally laid aside, to admit a new one, built on a doctrine very contrary to that, on which the present prevailing practice is founded.

He can only say in justification of his attempt, that he has had very sufficient opportunity at a public charity, for the last thirteen years, of making the following observations, and of putting into practice the pathology he ventures to lay before the public, in pursuing which he has satisfied his own mind, that most of the chronic, and perhaps some of the acute, diseases of the human skin, do oftener arise from a morbid condition, or action, of the motions and moving powers of the solids, than from any diseased state of the circulating fluids, as capable of injuring or affecting, by a specific virulence, the tone and structure either of the vessels through which they circulate, or by which they may be absorbed, or carried back into the system, from the various interstices of the cutaneous organ. He even has suspected, that, on some occasions, a morbid action, or deranged condition, of the extreme cuticular absorbents themselves, might give rise to, or at least aggravate, some cutaneous affections, on the principle of their being inherently the conductors of animal heat, by their absorbing the absolute fire of the atmospherical air.

There is a wise and pertinent observation by professor REGA, in the preface to his treatise “ DE
“ SYM-

“ SYMPATHIA,”* to the following purport, to wit,
 “ That the most celebrated writers of his time, with
 “ one voice complained, that the theories of me-
 “ dicine were sufficiently, and indeed very succeſs-
 “ fully, ſtudied and inculcated, but that the practice,
 “ which ought to be connected with them, had
 “ been exceedingly neglected, and was daily falling
 “ into decay, notwithstanding the many eminent
 “ diſcoveries in anatomy, chemiſtry, and natural
 “ hiſtory.” A much later writer † has alſo obſerved
 as follows: in his introduction to an eſſay on the
 ſource of the ſcurvy and putrid fevers. “ It has
 “ been remarked with ſome reaſon, but with a de-
 “ gree of ſurpriſe, that although the hiſtory of
 “ diſeaſes has of late years been conſiderably im-
 “ proved, the ſcience of phyſic has made very little
 “ progreſs; and that, although the various diſorders,
 “ which have engaged the attention of writers, have
 “ been deſcribed with uncommon accuracy, we have
 “ been far from attaining a thorough knowledge,
 “ or comprehenſion, of their natures, or from being
 “ able to give a rational explanation of their ſe-
 “ veral ſymptoms.”

THESE

* FRANCOFURTI ET LIPSIAE, 1762.

† DR. FRANCIS MILMAN, 1782.

These recorded imperfections of the medical art, must at all times raise, in the mind of a philosophic man, the suspicion, that a profession thus unfortunate, after so many centuries of observations, must have been in want of a pathology more clearly comprehended, and better founded, by a juster generalization of anatomical and physiological facts. This has been the case with the very *last* doctrine, BOERHAAVE's humoral pathology; for CULLEN's theory is not yet universally known and admitted; and the errors and defects, in many parts of the former's system and practice of medicine, will sooner or later be made evident by the recent, though slow, advances of the art, as well as by the detection of mistakes in the original, and fundamental, principles of the profession.

In the short space of time since professor REGA wrote, many other important discoveries in the above branches of general science have been made public. But no man has so much laboured, and aimed, at improving the practice of physic in latter times, by building it upon more rational doctrines, than our late celebrated professor, DR. CULLEN. To him the medical world have been indebted, for having so much drawn their attention to the interesting

¶

connection

connection between the ordinary function, and morbid affections, of the stomach, and the extreme vessels on the outward surface of the body. His observations, however, on this fact, form only a part of that general system, which the author of the present work shall humbly attempt to establish, in some of the following pages, by a different physiological explanation; though the attempt will not, I fear, meet with countenance from professional men at large, unless its elucidation appears clear to the comprehensive mind of the learned and long experienced physician, (hoping such can find leisure to look at them, from feeling a real interest in the cause of medicine) who, from his general knowledge, and his own store of facts and observations, is the proper person to decide upon the probable advantage, and reasonableness, of any new doctrine. To him particularly the author humbly submits the following reflections, but to all practitioners equally, who may have, from education and precept, built their daily hope of a successful practice, on a sure and intimate knowledge of its necessary connection, with the anatomy, the physiology, and the pathology of the human body.

The ingenious writer of an essay on the *materia medica*, lately published,* will not, I am afraid, be

* MOORE, 1792.

so candid as to allow, that such a great latitude of information, knowledge, and judgement, should be annexed to the above named medical character, from his having made the following observation in that part of his work, where he has drawn an analogy, founded on his own chirurgical experience, between the sputum of a pulmonary expectoration, and the discharge of an external ulcer, or gonorrhœa. "If physicians," says he, "made it a rule to study surgery likewise, they might draw much useful information from this sister ART."* This censure should not have been tacked to an occasion of such small importance, as the above.

Sorry will be the author of the present publication, if the observation should be generally thought well founded; but he flatters himself, that it is not to be justly vindicated. The physicians, however, of the present day, will undoubtedly feel a proper obligation to that ingenious writer, for his disinterested and public hint, which, unfortunately for mankind at present, can only be taken full advantage of by their successors. Neither is it to be thought, that any advantage would be taken of that part of education, by the superior rank of the profession, otherwise its

devotees would become fully justified in directing, much oftener than they do, the operative proceedings of the surgeon, from having fully engaged in his chyrurgical studies.

Even the small experience, and opportunities of making observations, which have hitherto fallen to the author's lot, justifies him in asserting, that the physicians of this country cannot have been regularly educated, or at least authorised to practice by the royal college of LONDON, without having progressively engaged, more or less, in the study of surgery, as well as medicine, particularly that part of it which relates to the diseases of the skin. There are, even in the capital of the BRITISH dominions, the best opportunities of acquiring an anatomical and chyrurgical knowledge, which most practitioners have attended to, and particularly those, who have afterwards received an university education. Notwithstanding these advantages, the physician of this country is not permitted to engage in the practice of surgery; and it would injure the cause of medicine, if he did.

But what renders the observation still more inapplicable, to the state of medical practice of the present day, is, that many of the first rank in medical

dical society have, in the earlier part of life, principally attended to it; and the writer of the present pages is more justified in saying, that too few have confined themselves sufficiently, in their education, to the perplexing study of medicine, than that they have not enough studied surgery. If medicine alone was more the object of an university education than it is, the improvement of medical system would advance more rapidly than it does.

The student of physic has been so constantly taught to believe, that anatomy, as well as physiology, becomes as essentially necessary in the education for, as in the practice of, the medical branch, that, it is hoped, it may be reasonably allowed, that the physician must insensibly be made acquainted with so much of the art of surgery, from its connection with anatomical lectures, as well as his own professional pursuits, as to qualify him, at all times, for meeting the surgeon, on chirurgical points of practice.

I have thought it *the more necessary* to notice the above observation in this particular manner, because it is not only *a false sketch* of the physician's character in this country, but an attack on the weight, which he is justly entitled to have, with other professional men, and the public.

If

If the author wanted any further stimulus, than a strong conviction in his own mind, of the importance and necessity of drawing the attention of medical men to the object of this work, as particularly connected with the external diseases of the body, to more strongly provoke him to offer the following sentiments to their consideration, it would have arisen from the joint observations of the foregoing writers, strengthened by the generally avowed opinion, and, at this day, acknowledged fact, that there is, even in the present improved state of medical science, no class of diseases so little understood, or so much in want of a rational pathology, to lead us to a more successful, and ready, practice, as that which should include the various chronic affections of the human skin.

If it should be thought, that the author, though with the view of throwing the fullest light he was capable of on the subject, has gone too far, in what he has said on the use of the cutaneous absorbents, as connected with the generation of animal heat, and of the general effect of phlogiston in the habit, as producing the varieties of exanthematous affections, &c. the kind reader will remember, that the
subject

subject is newly handled, and may, by the more mature reflections of the complete chemist, and the philosopher, be hereafter better elucidated. If he has also been too sanguine in his recommendation of the oak bark, as an antiscorbutic, he can easily be set right, on the principle he has gone, by the observations, and future experience, of the more learned.

But in this liberal, and enlightened, age he hopes and trusts, that no other apology is necessary for the present presumptuous undertaking, than the author's warm, and very anxious, desire of becoming usefull, to his suffering fellow creatures. Receive it, learned reader, as the humble offspring of long and arduous reflection and observation, rather than as the consequence of having studiously examined into the works of many authors; for, in his opinion, it would be endless, and in fact useless, to read the whole of the systematic writings, connected with the subject.

As the author may seem to his readers, to have been guilty of an impropriety, in not more frequently mentioning his authority, for what he at times seems to advance, as the observation and opinion of other men, it is proper to request it of them, that they
will

will be so indulgent as to attribute it to the real cause, namely, to his having been noting them down, for several years past, when he occasionally met with them, without a proper reference to the several authors at the time. Some also he may have alluded to entirely from memory; for it is several years ago since he recorded most of them, and at a time when he did not seriously think of publishing either his own, or referring to the opinions of others, on the subject. Of this he feels conscious, that he has not set down any thing, pertaining to, or proving, his reflections on the subject, but what is to be somewhere met with in books, or is at this time universally acknowledged, by the more recent experiments and observations of the medical and anatomical philosopher.

HEADS

HEADS OF THE SECTIONS

OF THE

DERMATO-PATHOLOGIA.

I	INTRODUCTION	—	—	PAGE I
---	--------------	---	---	-----------

S E C T I O N I.

The scrophula, syphilis, and jaundice are not impetiginous affections	—	—	—	13
--	---	---	---	----

S E C T I O N II.

Scorbutus very properly belongs to the order of impetigines, in DR. CULLEN's synopsis	—			20
--	---	--	--	----

S E C T I O N III.

The anatomy of the cutis vera, and its ema- nations, the rete mucosum, and cuticle	—			27
---	---	--	--	----

S E C T I O N IV.

Impetiginous affections do not properly be- long to the class cachexiæ in DR. CULLEN's synopsis	—	—	—	40
---	---	---	---	----

SECTION V.

	PAGE
Some corollaries on which the new pathology and proximate cause are established —	48

SECTION VI.

The division of cutaneous inflammation into phlegmonic, exanthematic, and erythematic —	51
--	----

SECTION VII.

Cutaneous diseases are most properly in the province of the physician — —	64
--	----

SECTION VIII.

The specific local effects of the operation of the remote causes, constituting the varieties of cutaneous disease — — —	71
---	----

SECTION IX.

The proximate cause of impetiginous and ex- anthematous affections is seated in the cutaneous capillary vessels — — —	91
---	----

SECTION X.

On the universality of the capillary vessels, and on the sympathy between the external and the internal — — —	98
---	----

S E C T I O N X I.

PAGE

On the irritability of the capillary vessels, and
on their being liable, from their organization,
to atony, and even paralysis — — 114

S E C T I O N X I I.

The remote causes act with a sedative effect,
in the production of impetiginous diseases — 122

S E C T I O N X I I I.

Atmospheric cold occasions impetiginous af-
fections — — — 130

S E C T I O N X I V.

Fear is frequently an impetiginous remote
cause — — — 137

S E C T I O N X V.

How violent passions may occasion impetigi-
nous appearances — — — 140

S E C T I O N X V I.

Certain states of the body and mind predis-
pose the system to the operation of the various
remote causes — — — 144

S E C T I O N X V I I.

Uncleanliness, and the use of ardent spirits,
are exciting causes of impetiginous disease — 149

SECTION XVIII.

	PAGE
Some detached observations connected with the loss of balance in the capillary vessels —	157

SECTION XIX.

On impetiginous affections from idiosyncrasy of the stomach, with their explanation —	165
---	-----

SECTION XX.

The summary of the new pathology and proximate cause of impetiginous diseases —	180
---	-----

SECTION XXI.

General observations on DR. CULLEN's class cachexiæ, with his definitions of scrophula, syphilis, and icterus, to shew more fully the impropriety of his nosological arrangement of them; with also the definitions of his other impetiginous diseases —	194
Conclusion to the DERMATO-PATHOLOGIA -	211

HEADS OF THE SECTIONS

TO THE

APPENDIX

OF THE

DERMATO-PATHOLOGIA.

SECTION I.

SOME of the principal facts and observations concerning animal respiration, as the source of animal heat, with the view to point out and explain, in the following section, a probable connection between impetiginous diseases, and the cutaneous exhalents and absorbents, as equally the regulators and conductors of animal heat.	PAGE
— — — — —	217

SECTION II.

A general commentary on the whole of the DERMATO-PATHOLOGIA, chiefly founded on

the theory of animal heat mentioned in the preceding section, as further explaining and supporting the different parts of the new impetiginous pathology, particularly by alluding to a connection between such diseases, and the capillary arteries and absorbing vessels of the skin, as being endowed with an inherent principle for regulating and controuling animal heat —————

259

SECTION III.

A necessary enquiry into a new opinion on the scurvy, advanced in a recent edition of a treatise on that disease, from the first having been noticed in the former part of this work, as well as from its being connected with the preceding doctrine, as defended by its author on the induction of pneumatic chemistry —

289

SECTION IV.

The proximate cause of scurvy is a certain morbid state or impaired action of the intestinal and cutaneous capillary vessels, occasioned by the sedative effects of a redundant quantity of phlogiston in the primæ viæ and habit, from the noxious nature of the diet of sea-faring people — — —

333

SECTION V.

The prophylactic and curative treatment of scurvy are to be founded on the principle of preventing, and removing, the præternatural accumulation

CONTENTS.

vii

PAGE

accumulation of phlogiston in the primæ viæ and habit	— — —	346
--	-------	-----

SECTION VI.

The cortex quercûs, or oak bark, is recom- mended as possessing properties, which may render it a more useful marine antiscorbutic, than any at present made use of in the BRITISH navy	— — —	370
---	-------	-----

CONCLUDING

SECTION.

Containing the breviary of those objects, to which the author proposes to give his thoughts and attention, with the view to another work, recommending the classification and formulæ for a new impetiginous practice, under the par- ticular head of DERMATO-THERAPEIA		383
--	--	-----

POSTSCRIPT.

Containing observations on the scarlet fever and ulcerated fore throat, and recommending the OAK BARK, in such cases, as often preferable to the PERUVIAN BARK	— — —	393
---	-------	-----

DERMATO.

CORRIGENDA.

INTRODUCTION, page 6, line 1, for IMPENDED read
IMPENDING.

Page 85, line 11, for VAROLA read VARIOLA.

— 253, — 4, for PRINCIPLE read PRINCIPAL.

DERMATO-PATHOLOGIA :

OR,

NEW THOUGHTS, &c.

ON THE

DISEASES OF THE SKIN.

INTRODUCTION.

BEFORE I enter upon a branch of medicine, too long and too often considered as of surgical importance only; a branch, which I have seriously undertaken to throw some light upon, with a view to the general improvement and credit of the HEALING ART, and which, if a new system of physic, perhaps founded on the principle of an ARTERIO-MUSCULAR PATHOLOGY, could be established on the plan

B

of

of SAUVAGE'S NOSOLOGIA METHODICA, might be properly enough denominated CACHEXIÆLOGIA DERMATICA et EPI-
DERMITICA, vel DERMATO-PATHOLOGIA; preparatory, I say, to this important task, I shall presume on the propriety of putting together a few observations on the progress of medical systems, which will not uninterestingly lead to the full consideration of the subject.

From the beginning of time, men must have indulged their reasoning faculties to promote the science and practice of medicine, and philosophic enquiry must have kept pace with experimental observations and discoveries. The systems of medicine are therefore numerous, because it has ever been thought necessary to study physic on a dogmatic plan, and there is no way in which it can be taught on an empiric plan. "Lieutaud has been considered as the latest
"and best writer in the latter way, but
"his work has been looked on as erroneous almost in every page."*

It

* Preface to CULLEN'S first lines, 1784.

It appears by the writings of medical men in the earlier ages of the world, that the treatment of diseases was first founded upon a humoral pathology. “ The explanations,” says CULLEN, “ which both “ the GALENISTS, and the followers of PARACELSUS, in their writings, severally “ attempted to give of the phænomena of “ health or sickness, turned very entirely “ upon the state of the fluids of the “ body.”*

There soon appeared however something still wanting to more successfully promote the healing art ; and systematic writers next introduced the principles of mechanism, the better to account for occult causes, and to unravel the complicated operations of an animal machine : but, as reason improved, and discoveries in universal knowledge multiplied, this doctrine was found imperfect and unsatisfactory. Still CULLEN has said, that “ the application of mechanical “ philosophy, to explain the phænomena “ of the animal œconomy, must, in some
B 2 “ respects

* Preface to CULLEN's first lines, 1784.

“ respects be continued, but never can
 “ be made use of to any great extent.”*

For many centuries after, the science of
 physic seems to have intrusted its practice
 and success to the weight of one or other of
 these doctrines, and “ the humoral, but
 “ chiefly the chemical, pathology therefore
 “ continued to prevail to the end of the se-
 “ venteenth century; and, indeed, still
 “ makes a great part of every system down
 “ to the present time.”†

In the beginning of the present century,
 men of observation and strong reflection ap-
 peared, who took full advantage of the
 many facts which had been observed, and
 of the experiments which had been made,
 by their immediate predecessors. STAHL,
 HOFFMAN, and BOERHAAVE may be named
 as the medical luminaries of that æra.

The FIRST founded his system on the
 supposed influence of a rational soul, which
 by physicians has been called NATURE;
 and

* Preface to CULLEN's first lines, 1784. † Ditto.

and “ the terms, VIS CONSERVATRIX,
“ and VIS MEDICATRIX, NATURÆ are of
“ very ancient date in the schools of phy-
“ sic, founded on a doctrine at all times
“ very much countenanced.”*

I cannot very readily agree with those writers, who argue, that the STAHLIAN doctrine ought to be entirely laid aside, as tending only to an inert practice. The *art of curing by expectation*, or in other words, *natures curing diseases*, founded on this doctrine, and so cautiously guarded against by DR. CULLEN, merits, in my opinion, more enquiry than will be easily employed or sought after ; and, if better understood, and judiciously admitted, would probably prevent the too bold use of many active medicines, which very often increase the morbid state they are intended to remove, and impede the progress to recovery. His well-meant attempt to explode the whole of this doctrine will, I fear, lead to such an empirical mode of practice, as to be as likely to hazard human nature to the ever-impended

* Preface to CULLEN's first lines, 1784.

impend^{ing}~~ed~~ consequences of its primo-genial mortality, as too great an encouragement of it would tend to increase the danger and insufficiency of a weak and feeble practice.

The reason why antimony is at present so courted, rather than feared and condemned, as it formerly was by the medical faculty of PARIS, may be this; that its powers are better understood, and are better proportioned to act, by its doses and improved preparations, on the principles of the STAHLIAN doctrine, conjointly with the operation of the *vires medicatrices naturæ*. Even at the time the peruvian bark was dreaded by BOERHAAVE and VAN SWIETEN, and when at this day it is supposed to have failed, or to have disordered the habit, its failure and bad effects may be attributed to the want of knowing exactly, how much of its powers were requisite to assist the *autocrateia* in her salutary and restorative exertions.

HOFFMAN, who next aimed at the improvement of system, appears to have succeeded better; but he was also much indebted

indebted to his predecessors as well as to his contemporaries, for their discoveries and reflections. His great merit lies in having taken into the account the influence and affections of the nervous system. But the laws of the nervous system, in the various circumstances of the animal œconomy, are by no means explained; the subject, as is observed by many, has been found, and still continues, too difficult. “On this account,” says DR. CULLEN, “DR. HOFFMAN’s system has been looked on as imperfect and incorrect. He himself has not applied his fundamental doctrine so extensively as he might have done; and he has every where intermixed an humoral pathology, as incorrect and hypothetical as any other.”*

BOERHAAVE, the cotemporary of the two former, took the lead at the commencement of the present century, and appears to have acquired such an ascendancy over most of the systematic practitioners of his time, that his doctrine was more generally received

* Preface to CULLEN’s first lines, 1784.

received than any former had been, since the time of GALEN, and, if recent historical tradition* speaks truly, still continues to subsist with credit in many of the schools of physic.

HIS fundamental doctrine appears to consist in the disease of the *simple solid*: but this will not explain all the phænomena of disease. He is reported to have almost entirely overlooked the state and influence of the *solidum vivum*. All admit, that his explanation of the simple diseases of the fluids rests almost wholly on his doctrine of *acid* and *alkali*. His idea of acidity in the mass of blood, according to CULLEN, accounted for many of his notions, tho' inconsistently with his other doctrines. “ His doctrine
“ of *alkali*,” says the same professor, “ is
“ somewhat better founded, but is proba-
“ bly carried too far; and the state of al-
“ kalescency and putrefaction, as well as
“ all the other changes, which can take
“ place in the condition of animal fluids,
“ are particulars yet involved in great
“ obscurity,

* Preface to CULLEN's first lines, 1784.

“ obscurity, and are therefore still subjects
 “ of dispute.”*

His doctrines, *de glutinosa spontaneo*, and of acrimony and lentor of the fluids, have been considered by the best systematic writers as imperfect, insufficient, and apt to mislead in practice.

On the whole, it may be observed, that BOERHAAVE's humoral pathology has been by most practitioners considered as hypothetically defective, while the doctrine of *plethora* and *cacochymy* has been so intermixt with the different parts of it, as well as with the STAHLIAN principles which preceded it, that the systematic physicians of the present century, have often been as much puzzled by the facts recorded, as by the theories advanced, in the writings of these intelligent directors of the healing art.

Thus much of our predecessors.—To
 speak of our own times, and of our leading
 C systematic

* Preface to CULLEN's first lines, 1784.

systematic DR. CULLEN, I think there cannot be a doubt, but that most physicians will be of opinion with him, “ that the
 “ great collection of new facts since BOER-
 “ HAAVE’s time, acquired by observation
 “ and experiment, affords the best and
 “ most solid reason for his (or any persons)
 “ attempting a new system,”* and, I trust, will justify the present limited undertaking. He has “ doubted, if any very useful work
 “ can be properly accomplished, without
 “ aiming at some system of principles, by
 “ a proper induction and generalization of
 “ facts; at least, he was persuaded, that
 “ it could be done, not only very safely,
 “ but most usefully, in this way.”†

When he speaks of his own system, as laid down in his FIRST LINES OF THE PRACTICE OF PHYSIC, he begs us “ to
 “ consider his hypotheses, and general doc-
 “ trines, as only a generalization of facts,
 “ or conclusions drawn from a cautious
 “ and full induction.”§

After

* Preface to CULLEN’s first lines, 1784.

† Ditto.

§ Ditto.

After having said, that physicians are at present in a better train of investigation than formerly, DR. C. further observes, “ that the affections of the motions and “ moving powers of the animal œconomy, “ must certainly be the leading enquiry in “ considering the diseases of the human “ body ; that the enquiry may be difficult, “ but it must be attempted, or the subject “ must be deserted altogether.”* It is on this principle, that I shall attempt in the following pages to establish a new pathology of cutaneous diseases, and to search after, and elucidate, their immediate or proximate cause.

Notwithstanding all that has been advanced by DR. CULLEN, in favor of this principle of disease in the animal œconomy, there are still many traces of the old humoral pathology to be discovered in his system and practice of physic.

* Preface to CULLEN's first lines, 1784.

DERMATO-PATHOLOGIA:

OR,

NEW THOUGHTS, &c.

SECTION I.

THE SCROPHULA, SYPHILIS, AND JAUNDICE, ARE NOT IMPETIGINOUS AFFECTIONS.

THOUGH the subject of this essay is to be considered in a different point of view from any hitherto published on the diseases of the human skin, yet it is intended, that the following pages shall contain a concise relation of the different opinions which have been advanced, particularly those which were occasionally delivered by DR. CULLEN, in his clinical lectures of the university of

of EDINBURGH; and with these different opinions I shall commence, throwing them together so as to form a general view of the subject, and introducing my own reflections on the whole, as they have occasionally arisen in my mind.

I concluded the introduction with observing, that the CULLENIAN doctrine still retains, in many parts of its system, the old leaven of the humoral pathology. The professor has in a particular manner adhered to it, in treating of the order of impetiginous affections. I shall beg leave to extract from his FIRST LINES all that he has said by way of introduction to this order of diseases, under his class CACHEXIÆ, as a proof of what I advance.

“ I find it difficult,” says DR. CULLEN,
 “ to give any sufficiently correct and pro-
 “ per character of this order; the diseases,
 “ comprehended under it, depend, for the
 “ most part, upon a depraved state of the
 “ whole of the fluids, producing tumours,
 “ eruptions, and other affections of the
 “ skin. Although it be extremely difficult
 “ to

“ to find a general character of the order
“ that will apply to each of the genera
“ and species, I shall here treat of the prin-
“ cipal genera, which have been commonly
“ comprehended under this order, and
“ which I have enumerated in my noso-
“ logy.”*

The enumeration the professor has alluded to (I am sorry to observe it) is too convincing a specimen of the present melancholy state of nosological improvement. The principal genera, treated of by CULLEN, under this head, are SCROPHULA, SYPHILIS, SCURVY, and JAUNDICE. The scurvy appears to me to be the only genus which may very properly pertain to this order of disease, the IMPETIGINES, presuming that the following pathology of cutaneous affections will well apply to it, as arising from a morbid action and condition of the motions and moving powers of the parts concerned.

It is, in my humble opinion, a very injudicious oversight in so pure a systematic writer

* Vol. iv. page 357.

writer as DR. CULLEN, to arrange under the head of impetiginous affections, the scrophula, syphilis, and jaundice. What an idea of these diseases must that practitioner take up, when he engages in the study of medical nosology, who has not been previously blessed with physiological and pathological erudition.

In the first place, scrophula is not, when attentively reflected on, a cutaneous affection. It should only be considered as a disease of the glandular parts lying under the skin, and sometimes extending itself to those of the thoracic and abdominal *viscera*.

CULLEN has not considered this disease as depending on a peculiar acrimony in the habit, though he has arranged it as an impetiginous affection in his class CACHEXIAE; for he has said, that it arises from *a peculiar constitution of the lymphatic system*. This is agreeable to his opinion, that the consideration of the motions and moving powers of the animal œconomy must form the leading enquiry, in our attempts to investigate the principle, perhaps, of every disease

disease, with which the human body may be inflicted. I shall therefore presume to think the scrophula to be occasioned by a depraved or deficient action of the glandular parts, independent of a specific or cachectic virus.

Secondly, The syphilis is universally known to be contracted by the operation of a specific virus, received by the absorbent system, and afterwards circulated thro' the whole mass of blood, and at last affecting and injuring different parts of the solids, topically and variously, as well as both externally and internally, at the same time, according to some peculiar idiosyncrasy of the constitution, or to some particular law of the animal œconomy.

Thirdly, The jaundice is well known to have its origin from a depraved action or condition of the liver, or from obstruction in the biliary ducts, arising from various causes, but in a secondary way only producing the proper icterical appearances on the skin, without a particular local diseased state of it : in fact, *the skin* is no way *diseased,*

eased, but is changed only in color, from the altered state of the blood, tinged from the absorption of bile.

This is the present improved state of impetiginous nosology in this country. PLENK of VIENNA, who has very assiduously brought together a numerous assemblage of cutaneous affections under a nosological view and arrangement, has only noticed the *flavedo icteritia*,* as a species of the *flavedo cutis*, and has referred you to the *icterus* of authors.* I very much lament, that, under the long-experienced eye of our CULLENIAN emendator, so great an inconsistency as the above should have been suffered to remain an evidence of the imperfection and evil tendency of the present state of nosological arrangement. I cannot see of what use the systems of nosology can be, either to the theory or practice of medicine, if the several genera, under any one class or order, are to be brought together, on an imaginary and ill-grounded relation to one another, when on cautious investigation

* See PLENCKII doctrina de morbis cutaneis, 1783.

investigation they are found to be so very opposite in their nature. Others probably will not be at a loss to understand; but I cannot help being myself of opinion, that nosology ought to be established on very pure principles, or not be attempted at all.

A few errors in the field of medical arrangement may be of somewhat more consequence to the well-being of the human race, than can ever attend the numerous deficiencies of those systematic compilations, which have only for their object the science of botany and natural history. But the botanist and zoologist are far before us in minute attention and observation. The physiology and pathology of the animal œconomy still remain, in so many respects, obscure and unsatisfactory, that we ought scrupulously to feel our way in the paths of nosology hitherto pointed out to us; and I fear, that, till our theory as well as practice are much improved, we cannot build any thing like to a nosological arrangement, but on a very feeble foundation.

DERMATO-PATHOLOGIA.

SECTION II.

SCORBUTUS VERY PROPERLY BELONGS TO
THE ORDER OF IMPETIGINES.

THE SCORBUTUS is very strictly an affection of the skin; as are also the ELEPHANTIASIS, LEPRO, FRAMBÆSIA, and TRICHOMA, in CULLEN'S nosological class of CACHEXIÆ. It has been unhesitatingly attributed by DR. CULLEN to a considerable change in the fluids of the body, occasioned by a particular nourishment, introduced by the absorbent vessels from *putrid ingesta*, received into the stomach, and *primæ viæ*. TROTTER defends his illustrious master for adhering to this opinion, contrary to the principle of his general doctrine, and himself supposes, that a preternaturally saline state of the blood (if I understand him right) is the PROXIMATE cause of this disease,

safe, while the phenomena of it, *apparently connected with the vital or muscular principle*, are *wholly* to be attributed to the action of the fluids upon the solids.*

On the other hand, DR. MILMAN, in his late *enquiry into the source from whence the symptoms of the scurvy and putrid diseases arise*, (and he is the only author I have met with, who has indulged in reasoning on a principle of disease, consonant with my own early-conceived ideas on the subject, and directly repugnant to BOERHAAVE'S doctrine of the humoral pathology, and which principle I shall take the liberty of denominating, and speaking of, as THE MUSCULAR PATHOLOGY,) attributes the morbid alteration of the fluids to a change in the condition of the solids, from a weakness in the muscular system; but he does not point out what particular muscular fibres are more immediately concerned in the production of scorbutic affections; and he has said nothing farther, respecting the condition

* MR. TH. TROTTER'S observations on the scurvy. EDIN. 1786, p. 62.

tion of vessels in the disease, than that,
 “ they break on the least touch.”

DR. MILMAN has considered this weakness as depending on a gradual diminution of the vital power, the VIS VITALIS of GAUBIUS, and has therefore attempted to establish this diminution *in the living principle*, as the PROXIMATE cause of scurvy. After having enumerated the affections of the muscular fibre, as pointed out by FONTANA, he says, “ the same affections being conspicuous in the disease of which I am speaking, I think myself warranted in referring them to the same cause, and to conclude, that the scurvy is not a disease of the fluids, but of the solids; that its seat is in the muscular fibre; THAT ITS PROXIMATE CAUSE CONSISTS IN A GRADUAL DIMINUTION OF THE VITAL POWER, by the remote causes of this disease; that the torpor, weakness, &c. observed in all the functions, are the first effects of the PROXIMATE CAUSE, VIZ. THE DIMINUTION OF THE VITAL POWER; and that the subsequent diminished cohesion between the particles

“ cles

“cles of the muscular fibres, and the tendency of these to putrefaction, are links of the same chain, and are ultimately derived from the same source.”*

I agree with DR. MILMAN fully in the general principle which he has laid down, and am not in the least shaken in my attachment to it, by what MR. TROTTER has *so dispassionately* advanced in objection to the *authenticity*, as well as the *ingenuity*, of the doctrine. My conviction of its justness is the more strengthened, from its being so contested a point ; for I feel it certain, from the contrariety of opinions on the subject, that one side of the question must be wrong ; and I am impulsively led to think, from the great irritability of our animal machine, that the solids are much more likely, even in the production of scurvy, to affect and alter the fluids, than the reverse, particularly when I consider, that so many occasional and exciting causes combine to disturb its actions so

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* MILMAN'S essay on the source of the scurvy, &c.
Page 103.

complicated, its affections so wonderful, and its impressions so innumerable.

I must however so far differ from DR. MILMAN, as to look upon the diminution of the vital power as the PRÆDISPOSITION or the PRIMARY and PRÆDISPONENT GENERAL CAUSE of the coming on of the scurvy, and not, as he has considered it, the PROXIMATE CAUSE. The meaning of the word *proximate* seems to me not, in general, to be justly comprehended. If I understand the term right, we are to seek for proximate causes in the immediate seat of the morbid affection, whatever be the disease. In this light DR. CULLEN has made use of it in his doctrine of fever. In the scurvy therefore we should call that the proximate cause, which immediately brings about the morbid condition of the skin, and that, I think, will be found to be seated in the vessels of the parts affected. I am of opinion, that the scurvy, as a disease of the skin, is occasioned by a *certain* morbid state and impaired action of the system of capillary vessels. What this state particularly is, it remains for me hereafter to point out.

In

In respect to the misconception of terms, I may go farther, and observe, that even the predisposing and remote causes are not in general well distinguished by writers. There are too many who do not clearly digest the different divisions and terms in a pathological system. In a very late publication on the SCURVY, by a gentleman* of experience, who seems to have received a part of his education at the medical classes of the university of EDINBURGH, I have read a very indistinct account of the application of the terms, *predisposing*, *remote*, and *proximate*, to the various causes. In this most probably useful prophylactic work, the chapters on the different causes of scurvy appear to me so very confusedly put together, that I am certain they would afford very little information or instruction, even to the most attentive student, notwithstanding that the object of the work is highly meritorious.

This author has observed, that “ it is of
 “ little consequence in practice what may
 E “ be

* MR. FRED. THOMPSON, of the royal navy, 1790.

“ be the proximate cause,” after having remarked, that the conjectures concerning it are of a very opposite nature ; and he almost implies, that there may be more than one ; (at least the title of the chapter implies so ;) or that they are different in different cases, which I cannot admit as possible in respect to the proximate cause of this disease, tho’ its degrees may greatly vary. It is clear, therefore, that this writer has not rightly understood the meaning of the term PROXIMATE. It also hurt me much to find, that even in this enlightened age, after all the labours and clear reasoning of our illustrious *modern* systematic DR. CULLEN, a well educated practitioner should give so great a latitude to the well refuted, and I might now say obsolete, doctrines of the humoral pathology. When it is duly weighed, that our indications of cure are in general founded on the knowledge of the proximate cause, it will surely be admitted as of consequence, to establish clearly this part of the pathology.

DERMATO-PATHOLOGIA :

SECTION III.

THE ANATOMY OF THE CUTIS VERA,
AND ITS EMANATIONS THE RETE
MUCOSUM AND CUTICLE.

TO further convince my reader of the difficulties of the subject, it ought to be observed to him, that the minute structure and intimate knowledge of the CUTIS VERA, *with its exterior and interior appendages*, do not seem yet to be either satisfactorily described from the laborious pursuits of anatomical men, or fully determined on by the reasonings and conjectures of physiologists. *They* would, in my humble opinion, merit particular distinction, and would with great propriety form a separate branch of physiology, under the title

of DERMATOLOGIA: for I very much think, that IT would be considered as a very interesting part of education, in every school of medicine.

From our present imperfections on this part of our subject, it becomes a very difficult point, to assert with confidence the particular morbid state of the skin, which constitutes the proximate cause of each of the different cutaneous affections; but a general one, for all of them may be more readily established, yet I fear not clearly elucidated. It must however be doing right to offer a short anatomical description of the skin, agreeable to the observations and enquiries of the present day, by dissection and experiment.

In the first place, the outside of the skin, or CUTIS VERA, is defended by a thin transparent pellicle, which has been called by the various names of EPIDERMIS EPITHELION, cuticle, or scarf-skin. The substance of the cuticle is very uniform on the side next the cutis vera, but on the outer side it seems composed of a
number

number of very fine small squammous LAMINÆ, without any appearance of a fibrous or vascular texture, except some small filaments here and there, by which it is connected to the parts beneath it. Its origin is said to be obscure, and its generation surprisngly sudden, which is a strong circumstance in favour of the opinion of HALLER and others, who have reported it to be derived from an arterious, rather than a nervous, secretion. KLINKOSCH has chosen to consider it as obtaining its origin from the source of the cellular membrane. However constituted, it has been thought by some to serve for contracting or forming the extremities of the cutaneous vessels; for whenever it is separated by abrasion, or otherwise, these vessels throw out their ferous or lymphatic fluids in much larger quantities than ordinarily. It has been further observed of the cuticle, that it is naturally constructed in blacks of two distinct plates, which are more easily separated in them than in EUROPEANS.

Secondly,—Under the cuticle there is a substance of a greyish colour, formed with
somewhat

somewhat of a net-work appearance, and hence it has acquired the name of the *RETE MUCOSUM*, but it is sometimes called the *CORPUS MUCOSUM*, and the *CORPUS RETICULARE*. It is of a soft, mucilaginous, and viscid nature, and fills up the interstices of those fibres and filaments which run between the *cutis vera* and *cuticula*. It is this *rete mucosum* which chiefly gives the colour to the skin; but it has not been clearly and properly distinguished by *TURNER* and others, in their erroneous anatomical, and physiological, account of the *CUTIS*. *HALLER* has observed of this intermediate mucus, and *femi-membranaceous* substance, that it has of late been commonly called the *RETE MALPIGHIANUM*, or *malpighian mucus*, but visible pores through it, have not been observed, analogous to the perforations of a sieve.

Thirdly,—The cuticle adheres very closely to the cutaneous *PAPILLÆ* under it, and which pass through the corpus or *rete mucosum*; but it adheres still closer to this *femi-membranous* substance, the *rete mucosum*

cosum, which, as is observed by some, may be easily raised along with it, and they have very much appeared to be true portions or continuations of one another: yet very different ends are very evidently answered by them. The cuticula is the only simple and uncompounded part of the human body, and is also the most uncorruptible in its state of vital existence.

Fourthly,—The CUTIS VERA may be explicitly defined as follows: It is a strong, thick, universal covering of the external parts of the body, immediately above the adipose membrane, which lies over the muscles, tendons, bones, &c. forming the external parts of the animal machine. It is composed of a close texture of fibres of various kinds, belonging to, or consisting of, capillary arteries, sanguineous, ferous, and lymphatic, with the corresponding veins to each kind; of nerves; and of the lymphatic absorbents; with the necessary but small quantity of cellular membrane, which binds them all together, forming what may be called the *parenchyma* of the true skin. With these tubular parts may also be
named,

named, as internal appendages to the cutis vera, the sebaceous glands with their ducts, and the bulbs and roots of the hair, both which pass from the internal surface thro' the skin. The disposition and connection of the capillary vessels I shall more particularly point out on another occasion, with perhaps the assistance of a plate. Other tubes or pores have been mentioned as conducting, independent of the glandular parts, an oily liniment from the adipose membrane, in some parts of the body.

All these minute parts, when taken together, constitute a most complicated organ, endowed with a high irritability, and indubitably of great importance to the animal machine, both in sickness and in health.

The outer surface of the cutis vera has been distinguished by its PAPILLÆ, which have been described as PYRAMIDALES. They consist of arteries, veins, nerves, and lymphatic vessels, and are knitted together by cellular membrane: the sense of touch has been particularly ascribed to these cutaneous papillæ, and they have been accordingly

ingly observed largest at the ends of the fingers. The cutis vera has been supposed capable of contracting and dilating to a surprizing degree.*

Fifthly,—Where there are large orifices in the *cutis vera*, leading from passages belonging to internal organs, it terminates by being gradually lost at the apertures of those passages; but it has been observed, that it then varies both in substance and appearance; for the mucous follicles, in the cutaneous openings from the internal parts, are very different from the external sebaceous *cryptæ*, though it may be said, that they are analogous to one another. It has been reported of the learned BONN,
F that

* Professor WRISBERG has observed, “ that the cutaneous papillæ, no regard being paid to their difference of situation, are all formed from the cellular texture, which serves them for a foundation, into which several furrows of vessels are directed; and the filament of a nerve, which is easily found in the tubercles of the tongue and glans penis, when it reaches this tubercle, is as it were softened and absorbed into a sponge. ALBINUS has elegantly represented the diversity of the papillæ.” See HALLER’s first lines of physiology, EDIN. 1786.

that he has thrown much light upon this subject.

The inner surface of the *cutis vera* is moulded on the outer surface of the *membrana adiposa*; and it appears as if the membranous part of the adipose covering, by being extended and mixed with the vessels, &c. formed, under a state of condensation, the *parenchyma* of the true skin. This membranous part, when free of fat, is known by the name of the *membrana cellulosa*.

Sixthly,—The GLANDULÆ SEBACEÆ, which have been divided into the simple and the compounded, are said to be seated under the skin or *cutis vera*, in the cellular membrane, and to perforate it by their excretory ducts. They have been, by some, improperly called SUDORIFICÆ, and are said to be numerous in particular parts of the body, to wit, about the ends of the fingers, the inguina, and behind the ears; the hairy scalp, skin of the forehead, and edges of the eyelids; the palms of the hands, and the soles of the feet.

Others,

Others, again, have made another kind of observation, namely, that they are most numerous in those parts of the body more immediately exposed to the atmospheric air; and have particularly pointed out as such, the skin of the brow, the face, and the surface behind the ears, in which, as well as other places, it has been said, that there are a great many of the *compounded* sort. What anatomical observers have meant by *this distinction*, I have not been able clearly to comprehend, nor have they properly described.

They have also been considered as numerous in those parts, which are most frequently liable to being exposed to much attrition, as the arm pits, the nipples, the groins, the glans penis, the nymphæ, the neighbourhood of the anus, and cleft of the podex, and the hams. They have also been described as frequently sending out hairs. Though anatomical researches have not hitherto demonstrated them to be every where, yet it has been supposed, that they are in no part wanting, because the *sordes*, collected on every part of the outer surface

of the body, has been found to be of the sebaceous kind.

Besides the sebaceous unctiōn, as a glandular secretion, it has been further supposed, as has been before alluded to, that another sort of liniment is poured out upon the *cutis vera*, from the adipose membrane itself, by its particular pores, independent of the intervention of glands; and that this more especially takes place where the skin is much covered with hair, as in the hairy scalp, &c. There is no doubt, but that a natural greasiness is discernible, more or less, on the whole surface of the human body, occasioned by some specific secretion or effusion, for that particular purpose.

Lastly,—Both the hair and nails may be considered as appendages to the skin. The former is more particularly connected with the *cutis vera*, having its origin from a little bulb, which has been represented as membranous, strong, and vascular, and imbedded in the cellular membrane lying under the skin. The bulbs
have

have been sometimes called GLANDULÆ PILIFERÆ. They have also been described as small spongy bodies at the roots of the hair; and are represented by HALLER, as being constituted of a bulb within a bulb, the inner one being surrounded with blood, from which arises the hair, laid over in some places with an adipose humour. The hair, with its cylindrical sheaths, enters the cutaneous pore, passes through the *cutis vera*, and forces the *epidermis*, into a similar sheath. The hair thus produced, continues organised through its whole length, in a wonderful manner, receiving its nourishment from these minute and complicated sources. The bulbs themselves are said to be furnished with importing, and exporting, blood vessels, with nerves, &c. the hair being as it were the excretory ducts from them.

Many more minute particulars might be noticed as connected with the physiology of the *cutis vera*; but the circumstance of the skin, which may be looked on as most striking, and which requires to be particularly

cularly pointed out, as immediately interesting to our subject, is its GREAT VASCULARITY, independent of its being the organ of touch, and the source of feeling; and when its vascularity and irritability are taken together, and added to the other circumstances pertaining to its complicated organic structure, they will surely be more than sufficient to convince every one, that the diseases to which the skin is liable, and with which it may be connected, must be unavoidably both very various, and very numerous, particularly when we attentively consider their varieties as depending more on the peculiarity of temperament, and the general state of the body, than any specific difference in the local affection itself.

I may also further remark, that at the same time, that the complex structure and sensibility of the *cutis vera* add much to the difficulty in attempting a new pathological explanation of its diseases, they also render it almost impossible to succeed in any plan for a nosological arrangement, with a view to assist and direct, or vary,
our

our treatment of them, according to their different appearances, by clear diagnostic principles.

It is however very reasonable to suppose, that parts differing so much in their specific qualities, construction, and uses, as the sebaceous glands, the bulbs of the hair, and the perspirable vessels most certainly do, should be liable to their separate morbid affections, which I do not think impossible, by more attentive observation to their local condition, as well as to their general connection with the constitutional tendency either to plethora or inanition, fully to investigate and discriminate. Notwithstanding I thus think, I still very much fear, that it ever will be found a most difficult task to distinguish impetiginous disorders by clear pathognomic symptoms.

To proceed with our observations on impetiginous theory and practice.

DERMATO-PATHOLOGIA.

SECTION IV.

IMPETIGINOUS AFFECTIONS DO NOT SO
PROPERLY BELONG TO THE CLASS
CACHEXIÆ.

IT seems to have been very universally supposed, from the writings of physicians in general, that most of the cases of cutaneous affections depended on a degree of acrimony, or impurity in the circulating fluids, thrown upon the skin, from its being prevalent in the constitution. But the particular nature of this acrimony has been scarcely ever known, so that they have not been able to follow any particular indication of cure. On this account they have laid down a general one, to wit, the changing the whole mass of fluids, and they have accordingly

accordingly recommended the dietetic *regimen*, with increased evacuations, to be continued for a longer or shorter time, as the special nature of the case might seem to require.

There is good reason to suppose that this principle of treatment might be very proper on some occasions; when the sanguineous or plethoric temperaments, either natural, or acquired, from whatsoever cause, prevail. Such a constitutional state, independent of the local cutaneous affections, is most frequently met combined with the impetiginous complaints of children, in whom PLETHORA and irritability often impair the healthful balance and condition of the cutaneous extreme vessels. On such occasions I consider the anti-phlogistic treatment, above recommended, as necessarily preparatory to that indication of cure, which is to be followed up, with a view of removing, ON THE PRINCIPLE OF A MUSCULAR PATHOLOGY, the proximate cause of the local cutaneous affection.

DRAKE has observed in his ANTHROPOLOGIA NOVA,* “ that the leprosy, from
“ its obstinacy in resisting all manner of
“ medicines, may demand the consideration
“ of a physician, and properly enough (says
“ he) in this place ; (treating of the skin)
“ for the root and cause may justly be
“ thought to lie elsewhere, yet the visible
“ feat of it is in the cuticle and surface of
“ the skin.”

I then expected that he would have endeavoured himself to account for the local diseased condition of the skin ; but he proceeds with the subject, in conformity to the old systems of physic, and spoils all by his explanation, founded on the idea of the saline humours of the blood, and the whole doctrine of the humoral pathology. So little even did the ancients think, that the moving powers of the animal machine could be at all concerned in the production of cutaneous affections, that they went so far as to attribute the process of perspiration itself to the condition of the circulating fluids

* Vol. I. page 15.

fluids, rather than to the altered and varied action of the solids, and sanguiferous system of vessels, immediately connected with this important office of the skin.

That some cutaneous affections seem to depend upon a particular acrimony or *virus*, diffused through the volume of the sanguineous and serous fluids, is not to be disputed. But it seems to me still to be of that special kind, which acts by its stimulating effects upon the irritable solids, rather than on the common idea of the specific action of a virus on the circulating fluids. Illustrative of what I mean, I shall beg leave to observe, that I think the syphilitic *virus* may act in this way, or on this principle, in its production of faucial and cutaneous affections, from the high irritability attendant on the system of capillary vessels. This opinion is not at all repugnant to what I have said in the first section, that the SYPHILIS is not an impetiginous affection: because I consider proper impetiginous diseases as not occasioned by a specific virus in the habit, though an acrimonious humour locally attends them.

Most of the chronic eruptions of the skin are certainly topical affections, connected with a general debility of the muscular system, and immediately dependent on a loss of balance in the circulation of the external and internal extreme vessels.

When the illustrious CULLEN felt himself at a loss, at some of his clinical lectures, in what manner to account for the common cutaneous efflorescencies, and other morbid appearances of the skin, he usually delivered it as his opinion, that they were owing probably to some derangement in the balance of the system, but he did not offer any particular explanation of this opinion, or expression, or in what particular manner the derangement could be brought about.

The impetiginous affections, which we are almost every day meeting with, are, in my opinion, directly caused by a topical dis-arrangement, or morbid action, of the living parts, or moving powers of the skin. What this topical state of the *cutis*, labouring under a local disease, may be, (though
the

the constitution may more or less sympathise with it,) I am in the following pages to attempt more particularly to investigate; laying therefore aside the opinion of a general acrimony, I shall confine myself to the consideration of a partial one, in accounting for which, I fear it will be thought, that I enter very dogmatically into the explanation of this part of my subject: yet I have to hope, that the reader will not be fruitlessly wearied by the reasoning, but in the end convinced by the facts, that will be brought forward in support of the induction, which will naturally be made from them. When I have been obliged to differ from some great authorities, I have ventured to declare it with fear and diffidence: for though I am so free as to reason for myself, I respect the opinions of other men. This I have said before,* but it cannot be repeated too often.

It is on the ground of my having supposed, that chronic cutaneous diseases are only local affections of the skin, with which
the

* In my treatise on sympathy.

the irritability of the muscular system may however sympathise, that I have been led to distinguish this section, as pertaining to the hitherto improper nosological classification of impetiginous complaints. For DR. CULLEN's character of his class *CACHEXIÆ* is the following.

“ Totius, vel magnæ partis corporis habitus depravatus, sine pyrexia pri-
 “ maria, vel neurosi.”

And that of his order of *IMPETIGINES*, under this class, is in these words, viz.

“ Cachexiæ, cutem et externum corpus
 “ præcipue deformantes.”

Now as I am of opinion, that the general habit is not cachectic or depraved, I am disposed to think, that they would more properly come under nosological arrangement in his class *LOCALES*, which he has characterized thus,

“ Partis, non totius corporis, affectio.”*

For

* See CULLEN's synopsis nosologiæ methodicæ. Vol. II.

For in as far as affections of the muscular, as well as the nervous, system, constitute the various genera of that class of diseases, while many of its species are pointed out as local complaints, or sympathies, from a general affection of the whole system, I have a right to think, that the circulating system is as much entitled, and is as liable, to its specific local derangements or disorders, as the nervous system, particularly when we reflect, that its function is so very much connected with muscular irritability.

DERMATO-

DERMATO-PATHOLOGIA.

SECTION V.

SOME COROLLARIES ON WHICH THE NEW
PATHOLOGY IS ESTABLISHED.

THE following physiological corollaries are to be considered as the *data* on which I attempt to establish a new explanation of the diseases of the human skin, and will very properly precede the enumeration of the generally received doctrines of cutaneous inflammation and eruption.

I. The human body may be compared to an hydraulic machine, being constituted almost entirely of vessels, or hollow tubes.

II. The

II. The fluids, transmitted and circulated through vessels, bear a very superior proportion, when compared to the weight of the whole human body.

III. The muscular fibres constitute a very great part of the whole of the solids of the human body, and are endowed with considerable irritability.

IV. The perfect circulation through the systems of sanguiferous and seriferous vessels, depends principally, if not entirely, on the healthful state of the muscular system.

V. The arterious portion of the vascular system is most numerously furnished with muscular fibres, which increase in proportion as the vessels become smaller; so that the structure of the extreme arteries, is at last principally, if not entirely, muscular.

VI. The vascularity of the CUTIS VERA is so great, that it may be said to form a *compages* of small arteries, and other
H vessels

vessels. It is therefore organised with as high a degree of muscular irritability, as any part of the body.

VII. The emunctories of the animal machine are intended to keep up a proper balance between the ingesta and the egesta, and they act in proportion to the former. In this light, the skin is the principal emunctory of the human body.

VIII. So great is the irritability and living principle of the muscular fibre, that DEATH itself has been considered as a stimulus to a muscle, when ITS approaches have been slow.

These points of physiology, properly viewed, may be stamped as the principles, on which the following new pathological doctrine is built, and they are even materially connected with all modern opinions on the subject of impetiginous inflammation, and cutaneous irritation.

DERMATO-PATHOLOGIA.

SECTION VI.

THE DIVISION OF CUTANEOUS INFLAMMATION INTO PHLEGMONIC, EXANTHEMATIC, AND ERYTHEMATIC.

INFLAMMATION, most strictly *cutaneous*, is very evidently of different kinds, and in later times has been divided into two, which have been distinguished by the names PHLEGMON and ERYSIPELAS. I think the division will very properly admit of three kinds, viz. the phlegmonous; the exanthematous, or erysipelalous; and the erythematous. CULLEN says, "There are two cases of ERYSIPELAS, which ought to be distinguished by different appellations. When the disease is an affection of the skin alone,

“ and very little of the whole system, or
 “ when the affection of the system is
 “ only symptomatical of the external
 “ inflammation, I shall give the disease
 “ the name of ERYTHEMA; but when
 “ the external inflammation is an *exanthema*, and symptomatical of an affection
 “ of the whole system, I shall name the
 “ disease ERYSIPELAS.”*

To form a nice distinction between these two cutaneous affections, is of the first consequence in practice; and I think, from their specific difference, they should more properly be considered as separate GENERA, than as only different *species* of an *erysipelalous* affection. This has led me to propose the division of inflammation, strictly cutaneous, into the above three kinds. For an *erysipelas* chirurgically treated, when it ought to have been medically enquired into, has proved of serious consequence, at all times, to too many of the human race.

The

The *erysipelas* is to be considered as an eruptive affection from a constitutional cause, and therefore, probably, from a specific virus, and accompanied from the first with an idiopathic fever. But the erythema is only the effect of external injuries, or irritating matters applied to the skin; and if at all accompanied with fever, it is to be considered as of the symptomatic kind, and is often the effect of external applications increasing the local inflammatory affection, from the great irritability of the skin, peculiar to some constitutional temperaments.

I have lately known (and I believe it is no uncommon case) external treatment so aggravate an erythematous affection from a slight outward injury, as to be followed by considerable cutaneous inflammation, and terminate in a phlegmonic affection, which however did not prove critical, for while the most innocent external applications were continued to be applied, the cutaneous inflammation went on spreading:—Immediately on their being discontinued, the inflammation began to abate, and the
cutis

cutis vera daily, but gradually, tended to its natural state. This was an affection of the back of the hand, producing considerable irritation as far as the OLECRANON. I have seen the same progress of external inflammation, under similar surgical treatment, in other parts of the body, several times before, but I did not then know how, or think of explaining it.

I learn from MR. CHRISTIE'S paper on the pemphigus, in the tenth volume of the LONDON MEDICAL JOURNAL, and in support of this explanation of erythema I mention it, that it is the opinion of MR. J. HUNTER, " that the skin and cellular
" membrane are extremely susceptible of
" the suppurative stage of inflammation,
" but that internal and deep seated parts
" resist it long." Hence it is further observed, " that extraneous matters taken
" into the stomach, though they irritate
" and inflame, seldom occasion suppura-
" tion; and when by their acuteness or
" gravity they pierce through, as in the
" case of pins and bullets, the suppura-
" tion does not take place till they come
" near

“ near the surface of the body.” These are curious circumstances, well worth reflecting on ; and MR. CHRISTIE remarks, that “ the wisdom of this law of nature “ is evident ; for if every irritating cause “ could produce suppuration in the internal parts, as easily as it does at the “ surface, a most numerous and fatal train “ of evils would be the consequence.”

This physiological fact strikes my mind at present with an idea, that the great use of the sympathetic connection between the internal and external extreme vessels, (as will be more noticed hereafter) in the production of some impetiginous affections, may be to guard, as a law of nature, a *vis conservatrix*, the internal organs and functions from the more serious consequences of internal suppurative effects, and intestinal erysipelatous affections, on the principal of their being relieved by whatever promotes and excites extraordinary cutaneous action. We often witness the salutary effects of an eruptive fever, in particular feeble temperaments.—The variola, either natural, or by inoculation, has

has been frequently known to improve the health of weakly children; and a cutaneous disease has been successfully given, as the curative means of an internal diseased habit, joined to a pulmonic affection.

CULLEN appears to me to have contradicted the justness of his own distinction between these diseases, when he says, “ that an *erythema*, arising from an *internal* “ *cause*, is occasioned by an acrimony “ poured out on the surface of the skin, “ under the cuticle.”* Though I believe, that an erythematic affection may arise from a local irritation, without either an external injury, or a constitutional virus, yet I am disposed to consider such a case as rather of the erysipelatous nature, produced by a local acrimony of the fluids, from a morbid or impaired action of the vessels of the part affected, and probably connected with some constitutional bodily derangement. If I am right, it therefore follows, that a true *erysipelas* may be of two species, the one arising from a constitutional irritation

* Ditto of the first lines. Page 258.

tion determining itself to the part affected ; the other from a local acrimony, caused by a debility or morbid affection of vessels.

In the true phlegmonic inflammation an acrimony is not commonly evident, and every phlegmonic eruption may be considered as a small abscess.

I shall make a few further remarks on the object of this division, as explanatory of cutaneous inflammation ; but till the subject is better understood, and better divided by clear pathognomonic symptoms, it will be prudent to use the words *erysipelalous*, and *erythematous*, as *synonymous* terms ; for authors and nosologists apply them indiscriminately to affections, which bear a similitude to one another, and probably the specific qualities of each are sometimes combined in the same affection.

The PHLOGOSIS, or phlegmonic inflammation, has been described by writers in general, as occasioned by an affection of vessels on the internal surface of the skin, and communicating with the lax subjacent

cellular membrane ; affecting therefore immediately the sebaceous glands, and the bulbs of the hair : but when the inflammation is erythematic, or, as is frequently denominated, erysipelatous, it is a more superficial affection, and is confined to the PAPILLÆ, and to the vessels on the external surface of the skin, or *cutis vera*, communicating with the rete mucosum. In the first kind of cutaneous inflammation the serum effused is generally convertible into pus, forming large pustules or boils ; in the latter smaller vessels rupture, and pour out a lymphatic or thinner fluid, which, by separating the cuticle, forms the vesicular and squammous appearances on the skin, attendant only on this kind of inflammation.

Local inflammatory affections of the skin, *sine febre idiopathica*, seem to me to be very improperly arranged in CULLEN'S nosological system ; for “ when the disease ERY-
 “ THEMA is an affection of the skin alone,
 “ and very little of the whole system,” the character of his ORD: PHLEGMASIÆ, in his class, PYREXIÆ, will not at all apply to it.

ORD:

ORD: II. PHLEGMASIÆ.

“ Febris synocha ; phlogosis ; vel dolor
 “ topicus, simul læsâ partis internæ func-
 “ tione ; sanguis missus, et jam concretus,
 “ superficiem coriaceam albam ostendens.”

Notwithstanding which, he has placed
 ERYTHEMA, as a species of PHLOGOSIS,
 under this order.

For the full satisfaction of the reader I
 shall extract the character of PHLOGOSIS, as
 a genus of the ORD: PHLEGMASIÆ, with the
 characters of its two *species*, from the *syn-
 opsis* CULLENI, and leave him to make what
 further comment he pleases.

G. VII. PHLOGOSIS.

“ Pyrexia, partis externæ rubor, calor, et
 “ tensio dolens.” Species sunt,

I. Phlogosis (*phlegmone*) rubore vivido ;
 tumore circumscripto, in fastidium plerum-

que elevato, sæpe in apostema abeunte;
dolore sæpe pulsatili.

II. Phlogosis (*erythema*) colore rubicundo,
pressione evanescente; ambitu inæquali,
serpente; tumore vix evidente, in cuticulæ
squamulas, in phlyctænas vel vesiculas abe-
unte; dolore urente.*

HIS APOSTEMA, as the *phlogosis sequela*,
is thus described,

“ Post phlogosin, remittentibus dolore
“ et pulsatione, tumor albescens, mol-
“ lis, fluctuans, pruriens.”

And ABSCESSUS, and PUSTULA are the sy-
nonyma of the authors, and nosologists,
BOERHAAVE, VOGEL, LINNÆUS, &c.

When the *lymph* of the blood is effused,
as in the cases of erythematic inflammation,
it is in course of time absorbed, and then
the affection is said to terminate by RESOLU-
TION. But the *serum*, under a state of stag-
nation

* Synopsis nosologiæ methodicæ. Edit. tert. 1780.

nation in the cellular substance of a phlegmonous inflamed part, may suffer such a particular alteration, as the effect of the inflammatory heat, as to have its *gluten*, or coagulating lymph, changed into a milky, or cream-coloured, bland, fluid, which is known by the name of pus; and thus is formed the *apostema post phlogosin*; and this inflammation is said to terminate in SUPPURATION.

I have a suspicion however, that this alteration may sometimes take place, even in the inflamed distended vessels, from their high muscular irritability and action, without supposing that an effusion from, or rupture of, them must necessarily happen. This becomes, in my opinion, properly a parenchymatous inflammation of the *cutis vera*, and though it may sometimes, does not often, terminate in *apostema*; I think it is, strictly, this *species* of PHLOGOSIS (*erythema*,) which terminates in GANGRÆNA, as characterized by CULLEN.

“ Post phlogosin, pars livens, mollis,
 “ parum sensibilis, sæpe cum vesiculis
 “ ichorosis.” The

The PHLOGOSIS (*phlegmone*) from its original nature, must always, when properly managed, terminate in APOSTEMA ; but so much depends upon skillful local management in cutaneous inflammation, and setting out with just diagnostic principles, that for want of this judgment, I have repeatedly seen a pure idiopathic *erythema* terminate in the PHLOGOSIS (*phlegmone*.) In like manner, I should suppose a phlegmonous inflammation, injudiciously managed, might be disposed to terminate in gangrene.

When gangrene, from violent heat and inflammatory action of the vascular parts, terminates in SPHACELUS, I should suppose that the stagnant fluids not only become putrid, and spread the mischief, but that a perfect atony of the moving powers of the part affected, as the *sequela* of their high inflammatory excitement, is the principal cause of this vitious and deadly state, which can only be stopt by stirring up a sufficient action in the moving powers which remain to resist it. CULLEN describes this third *sequela* of PHLOGOSIS thus,

SPHACELUS.

SPHACELUS. “ Post gangrænam pars
“ nigricans, flaccida, facile lacerabilis, sine
“ sensu vel calore, et cum fœtore carnis
“ putridæ; vitio celeriter serpente.”

These various and serious changes in inflammations, strictly cutaneous, prove how great the irritability, and how important the vascularity, of the CUTIS VERA must be, and how much their influence and their natural powers ought to be attended to, in regulating ITS natural circulation, and in endeavouring to restore it under a diseased state of the skin.

I shall conclude this section with observing, that though acrid matters externally applied, or arising from an internal cause, have been supposed to be the stimulating source of erythematous affections; yet such an inflammatory state can only be produced on the internal parts, namely, through the whole course of the primæ viæ, “ where
“ the surfaces are covered with an *epithelion*, or membrane analogous to the cuticle.” Such are the apthous inflammations of the mouth and fauces, &c.

DERMATO-

DERMATO-PATHOLOGIA:

SECTION VII.

CUTANEOUS DISEASES ARE MOST PRO-
PERLY IN THE PROVINCE OF
THE PHYSICIAN.

SINCE cutaneous inflammations are considered as either symptomatic of a general affection of the system, or, when idiopathic, as liable to be attended with a considerable sympathetic irritation of the whole habit, it is not much to be wondered at, that so many practitioners should be (and I will add justly) of opinion, that they ought more frequently to fall under the province of the physician than of the surgeon. Why was not DR. CULLEN of this opinion?

I believe

I believe it must have arisen from the MISTAKEN NOTION of their belonging to the latter, that external applications have been so much used and recommended by all practitioners, and almost wholly relied on in such cases, notwithstanding they are so often intimately connected with the general temperament and habit of the body. I am afraid that they have been too frequently used, not only without success, but with an aggravation of the disease, and sometimes to the lasting detriment of the constitution, and, I wish I had not lamentable reason to add, in the end the death of the patient.

It has been avowedly THE REASON assigned by DR. CULLEN,* for his having passed over so many of the impetiginous affections in a cursory manner, of which he ought to have fully treated, and which he must have known to have been frequently connected with a deranged state of the constitution.

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I should

* Vol. i. page 256, of his first lines.

I should think it a fortunate revolution in the mode of practising the HEALING ART, if the medical and chirurgical departments were more distinctly circumscribed, or even completely separated, and if the practitioners of both never copied after, or interfered with, one another; though I believe that it is very rare, *that the PHYSICIAN ever meddles with the province of the SURGEON.*

They ought to be considered as two naturally divided, and equally respectable, professions, each sufficiently difficult and important to become of itself alone the proper and fixed object of one man. Such a change would be for the interest of both characters, as well as for the improvement both of the art of surgery, and the science of medicine. We then should meet oftener than we now do.

I have sometimes heard it observed in common medical conversations, when the merit and utility of the different branches of the profession became the subject of a partial controversy, that the SURGEON generally

nerally looks upon HIS profession as a POSITIVE ART, and on *mine* as a *negative* SCIENCE. I have always on these occasions smiled, and when I could take the liberty, have politely thanked the promulgator of so liberal an opinion. On one occasion I could not contain myself, but was indignantly led to admit, that there was a great deal of *positive art* in the practice of surgery, and at the same time I observed that it was the easiest to practice, and *seemed* to do the most good : but I also, with due deference, requested of this advocate for the pre-eminence of his chirurgical character, that he would still use his best endeavours to improve HIS BRANCH, as positively and as seriously as I should endeavour to improve MINE.

It is plain that these observations are intended to apply only to some few chirurgical characters, whose daily habits and pursuits have at all times been directed with a view to surgery alone, and whose education as well as practice have principally tended to that object, and who (cannot do less than) declare that they are not engaged

in the practice of *medicine*.—Is it reasonably and patiently to be submitted to, and undeniably admitted, that they, *under such circumstances*, can be as fully acquainted with the serious and important connection of cutaneous and other diseases, with the general physiology and pathology of the human body, as the physician, who naturally gives all his attention to medical objects, and the studies connected with them; at least their practice does not carry with it the appearance of such extensive information. I cannot even admit, that a perfect knowledge of COMPARATIVE ANATOMY can ever make a physician. I might as well pretend to the knowledge of the proper treatment of a wound, or the amputation of a limb, because I may have a tolerably correct idea of the anatomy of the parts concerned.

It has always struck my mind as a professional impropriety, that the PHARMACOPŒIA of the ROYAL COLLEGE OF PHYSICIANS should contain the various preparations of ointments, plaisters, &c. and all the other
external

external applications pertaining to the branch of surgery. Such would appear to me to become more properly the object of the CORPORATION OF SURGEONS, as an equally chartered body of practitioners, with privileges and immunities of their own.—There would then be the proper DISPENSATORIUM CHIRURGICUM, and a *pharmacopeia* with that view would be consulted by medical practitioners, when there was a propriety, as well as a necessity, to have recourse to it.—Whatever may have been the origin of the *emplastrum* and *unguentum cantharidis*, &c. they even would very properly come under this proposed regulation, without any affront to the dignity of the medical jurisdiction.

I could make several further remarks on these subjects, collected from attentive observation, and some experience ; but it is no pleasure to me to dwell longer on them, and I have been induced to say what I have penned, FROM NO OTHER MOTIVE, than the interest I take, in whatever concerns the HONOR of every branch of the HEALING ART, feeling naturally anxious that MY
OWN

OWN should support its RESPECTABILITY. I therefore shall cut it short with the hope, that every FREE MAN will think I have done no more than my duty, and that every PROFESSIONAL MAN will repeat the following MEMORANDUM from the eighth volume of the BEE, with a favourable acceptation, and with its proper application to the subject.

“ Men may be convinced, but they cannot be pleased against their will;
“ but though taste is obstinate, it is
“ variable, and time often prevails
“ when arguments have failed.”

I THINK NO GOOD MAN CAN BE OFFENDED WITH ME FOR MY FREEDOM IN OFFERING THESE PROFESSIONAL OPINIONS, AFTER HE HAS ATTENTIVELY AND LIBERALLY CONSIDERED THE WHOLE I HAVE SAID, AND THE INTENT WITH WHICH I HAVE SAID IT. I NEVER SHALL BE MYSELF DISTRESSED OR ANGRY AT BEING DIFFERED WITH; BUT ON THE CONTRARY PLEASED, IF I AM FAIRLY AND HANDSOMELY CONVINCED THAT I HAVE BEEN IN AN ERROR. LET EVERY ONE REMEMBER,

“ HUMANUM EST ERRARE.”

DERMATO-

DERMATO-PATHOLOGIA.

SECTION VIII.

THE SPECIFIC LOCAL EFFECTS OF THE
OPERATION OF THE REMOTE CAUSES
CONSTITUTING THE VARIETIES
OF CUTANEOUS DISEASE.

IT will, in the next place, be right to consider what the different parts of the skin are, which may become affected under different diseases, and I find, that pathologists have referred the operation of the remote causes, in the production of them, to one of three principles.

First,—As occasioning a depraved secretion of the SEBACEOUS GLANDS.

Secondly,—As occasioning a morbid state of the BULBS OF THE HAIR.

Thirdly,

Thirdly,—As occasioning a morbid condition of THE VESSELS on the external surface OF THE SKIN.

Introductory to the few arguments which may be brought forward in support of each division, I shall observe, that an acrimony may be present in the skin, which did not pre-exist in the mass of blood; and in the next place, I shall consider it as granted, (or let it for the present only be presumed,) that the secreted fluids are actually produced in the secreting organs; that they in them meet with such circumstances and alterations in the moving powers, as occasionally change their nature; and that they are entirely generated in these organs. It therefore follows, that when any morbid secretion affects and injures the healthful state of the skin, we are not to suppose, that the acrimonious humour pre-existed in the blood itself.

They, who are of opinion, that it is very evident, that the state of the secreted fluid must be dependant upon the state of the secreting organ, argue thus. Is it
reasonable

reasonable to suppose, that, because the acrimony of the bile may be increased, in consequence of a stimulus, this acrimony præ-existed in the whole of the circulating fluids; or can it be for a moment imagined, that the acrimony of imperfect mucus is owing to the general condition of the sanguineous and serous fluids? From this analogy they think it reasonable to conclude, that the secretions of the skin are changed, without any previous acrimony of the blood.

As the different minute parts connected with the *cutis vera* may occasion, when diseased, the varieties of impetiginous affections, which are every day embarrassing us, I shall next proceed shortly to explain the particular change in each part, as supposed to be their condition when morbidly affected; and I shall endeavour to illustrate them with an example or two. With regard therefore to the

First,—*The depraved secretion of the sebaceous glands.*

The superficies of the body, or *cutis vera*, has been supposed to be well defended from the ordinary acrimony of the perspirable matter, by an unctuous or *oily* secretion furnished by the sebaceous glands. From any morbid state or action of these glands, either in not at all furnishing their necessary exudation, or affording it in so thin a state, that it is readily washed off, the skin becomes affected by either the sebaceous or perspirable acrimony, and in this way may often be inflamed. Such a morbid secretion, productive of erythematic, and sometimes of pustular inflammation, according to constitutional temperament, very frequently happens to children behind the ears, where the sebaceous glands have been discovered to be very numerous.

It may further be supposed, that the ducts from the sebaceous glands, which pass through the *cutis vera*, may also become affected at their extremities, by the irritating quality of the perspirable fluid in certain states of the habit, particularly when the inflammatory diathesis prevails to any considerable degree. This may be the
reason

reason why we so often meet with inflammatory eruptions as the immediate consequence of sweating, especially when the sweat is in any way confined to the part, or even effused in any considerable quantity.

The miliary eruption also has been observed by DR. CULLEN to be the effect of sweating, and has by him been considered as the impetiginous effects of a matter, generated, under particular circumstances in the skin itself, and not before prevailing in the mass of blood. I was glad to find that HE had once admitted, that a cutaneous eruption might be the consequence of cutaneous action; and therefore the miliary eruption may be, according to his opinion, the produce of an inordinate secretion of the sebaceous exudation, from the increased action of the glands themselves.

It however seems to me, from the antecedent symptoms of the miliary eruption, to wit, the anxiety, itching, and the pricking, "AS OF PIN POINTS," in the skin, to be occasioned solely by a morbid action

of the capillary extreme vessels, as they are most likely to be attended, from their anatomical structure, with THAT PARTICULAR SENSATION. These observations however would have come with more propriety under our third head or division, in this section. In respect to the

Second.—*The morbid condition of the bulbs of the hair.*

It must be admitted, that the hair has a source of nourishment as well as the other parts of the human body. The most probable one appears to be from the vessels in contact with the roots or bulbs of the hair, which, by some peculiar organization and action, furnish a moisture, that becomes necessary to their growth. This must appear to every one sufficiently evident, from the state and variety of the hair in different temperaments. It has also been observed, that it shrivels, and changes colour, or falls off, according to peculiar idiosyncrasy, and under the different circumstances of age or constitution, when this exudation from the crinial

crinial vessels, or whatever other source of the moisture there may be, is dried up.

A diseased condition or action of the vessels, constituting or supporting the bulbs of the hair, may therefore afford the irritating effusion, which sometimes forms itself into the incrustations covering the cutaneous affection, and sometimes exactly encircling the hair, particularly when of the herpetic kind. We have a sufficient proof of a species of this disease in the case of the *TINEA CAPITIS*; but we also frequently meet with an impetiginous affection of the *CAPILLITIUM*, accompanying the universal herpetic and other eruptions, at all periods of life.

Some of the leprous affections of this country are probably of the same nature, but varying in degree, and differing from herpetic eruptions, according to the operation of various external remote causes, the manner of dieting, &c. as well as from the nature of the constitutional temperament itself. In fact, it is no uncommon thing to meet with both leprous and herpetic eruptions

eruptions at the same time, in one and the same person, owing, I think, to a difference in the state of the circulation at the parts so differently affected.

What share in the production of *capillary* or crinial diseases the pores, affording the supposed liniment from the adipose membrane, may have, I shall not take upon me to conjecture.

Before I proceed to the full consideration of the third division of the diseased condition of the skin, to wit, the state of its vessels, I must beg leave to have it particularly observed, that the morbid state both of the crinial bulbs, as well as of the sebaceous glands, may be very often, and perhaps is in general owing to a deviation from the healthful state, in the ordinary effusion of the perspirable fluid, so that when the acrimony of it is super-abundant, from some peculiar diseased action of the system of capillary vessels in the *cutis vera*, it may then affect the condition of the specific secretions, of which I have been speaking.

It

It may be further noticed, as claiming the strictest attention and observation, that, from the close connection of all these minute parts with one another, it becomes extremely difficult to distinguish their separate morbid affections from each other ; but I am much inclined to think, that there is an essential difference in the diseases, which each is liable to.

I am now led to consider the condition, organization, and action of the superficial and extreme vessels of the arterious system, so immediately concerned in the impetiginous condition of the skin : and this would seem to demand the most cautious enquiry and investigation.

Third,—*The morbid condition of the cutaneous or perspirable vessels.*

It will be very proper first to take notice, that all effusions made under the cuticle, or into the cells of the adipose membrane connected with the rete mucosum and *cutis vera*, either by exhalation or rupture of vessels, are supposed to originate from the se-
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rous or lymphatic part of the blood, as the *pabulum* of the perspirable fluid: for the two sources of impetiginous affections already mentioned, to wit, the sebaceous glands, and the bulbs of the hair, are rather to be considered as fecerning organs with their excretory ducts, acting as conduits through the CUTIS VERA and cuticle; and are not therefore to be looked on as, in an ordinary way, capable of occasioning effusions under it.

It has been the opinion of some authors and pathologists, that the perspirable matter can of itself alone be the cause of impetiginous acrimony; and they have confirmed themselves in this opinion from observing, that it has so readily produced cutaneous eruptions, when it has been in excess, and from its producing them in those parts most readily, from whence it could not escape, because various applications, as coverings to the skin, detained it in these parts, such as the ordinary vestments, plaisters, &c.

It has been further observed by them, as noticed before, that the perspirable fluid
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may be, on some occasions, a matter capable of conversion into pus, and on other occasions a matter not convertible into pus. When it is the former, they suppose inflammation always to attend, either from an inherent, or an outward occasional, cause; and this they have exemplified, as an instance from a constitutional cause, in the case of the eruption of the small-pox. If it be of the latter kind, then vesications will be fabricated on the outward surface of the CUTIS VERA, as in those species of cutaneous disease, the PEMPHIGUS and ERYSIPELAS.

The PEMPHIGUS is a rare disease, and has been considered by DR. CULLEN as a symptomatic affection, which he has nosologically arranged in the order of EXANTHEMATA, under his class PYREXIÆ. But if we are to give credit to the observations of some writers on this disease, it would appear to be sometimes an idiopathic affection, with which the constitution may sympathize, attended with an eruption of a very uncertain duration, and appearing very irregularly on different parts of the body, for many successive days, and frequently

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quently with so little of a general affection of the system, that it might almost come under the character of CULLEN's *erythematic* affection of the skin, in that particular point of view.

This opinion is strengthened from their having taken notice, that the vesicles of the pemphigus have been observed to vary much; no doubt according to the temperament and state of the habit. They have therefore been described as sometimes pouring out a bloody, and sometimes a slightly purulent, ICHOR, though they in general only contain a ferous fluid. Which is properly the symptomatic, and which the idiopathic, kind, I am not yet prepared to say.*

I have received an impression on my mind, from considering the rarity and variegated account of this disease, that the PEMPHIGUS may be attributed to a *peculiar idiocyncrasy* of the CUTIS VERA; as a proof of which, it is sometimes the *sequela* of
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* Read DICKSON and CHRISTIE on the PEMPHIGUS, in vol. ix. and x. of the LONDON MEDICAL JOURNAL.

of the low fever, a disease so common, that this eruption would be oftener met with, if it did not depend upon some cutaneous idiocyncrasy. It has however been proposed by MR. CHRISTIE,* to be divided into the *simplex* and *complicatus*.

If I ever should feel nosologically inclined, I should propose its being divided into the PEMPHIGUS *febrilis*, and *non-febrilis*, or *symptomaticus et idiopathicus*; for I should consider the eruption attending the first species as symptomatic of a general affection, and debility of the circulating system, and the second species as an idiopathic disease, arising from a local derangement, or morbid alteration in the action of the cutaneous vessels; but I believe the *pemphigus febrilis* is of the two kinds most frequently observed.

When blisters are formed on the skin without previous inflammation, or evident acrimony, as the vesicles of some cases of the pemphigus may be looked on to be, I

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* See CHRISTIE on the PEMPHIGUS, in vol. x. of the LONDON MEDICAL JOURNAL.

am much disposed to imagine, that such arise either from a defect in the cuticle itself, or a simple atony at the extremities of the cutaneous vessels, in some way or other disturbing its connection with the rete mucosum : for such is the connection between these vessels and the cuticle, according to the doctrine of arterious nutrition, that a fault in the office of the former, and in the construction of the latter, may aid, if not entirely occasion, the formation of PHLYCTÆNÆ or VESICULÆ, which will contain either a serous or a lymphatic fluid : but all this I shall endeavour to make clear in a future part of my essay.

The ERYSIPELAS is much better known, and is attended, according to CULLEN, with an exanthematous eruption joined to a synocha, but which affection of the skin is characterized, by this accurate nosologist, as a PHLOGOSIS *erythema*.* There appears to me some inconsistency in this classification and description, *a something* like a seeming contradiction ; for he sets out establishing

* See his synopsis, G. xxvi. of his order exanthemata.

blishing a principle of distinction between *erythema* and *erysipelas*, and yet characterizes the latter thus, “ In aliqua cutis parte, “ sæpius in facie, phlogosis *erythema*.” These nice distinctions must puzzle the most reflecting pathologist, and expert practitioner.

I have before observed, that there are probably two *species* of the ERYSIPELAS; viz. an idiopathic and a symptomatic.

As the VARⁱOLA has been mentioned as an example from a constitutional cause, with the perspirable fluid convertible into pus, it will be worth while here to observe, that the greater number of pustules in the small-pox has been attributed by DR. CULLEN to an inflammatory state of the whole system, and more particularly of the skin. But this will not explain every case of the small-pox: for what is the principle which constitutes the difference between the distinct, and the confluent sort?

It certainly is not occasioned by any specific difference in the virus. This is very
clearly

clearly proved by the various consequences of inoculation, in cases where the same virus has been made use of. It must therefore depend upon some constitutional cause, and does most probably arise from the different mode of action, or condition, of the cutaneous capillary vessels, either from a difference in the constitution of the patient, or from a peculiarity in the nature of the fever, occasioned by some unfavourable state of the person to whom the variolous matter has been applied.

I believe it will be found, on minute investigation, that the varieties of *exanthematous* affections are more probably owing to the specific difference in the irritability of the skin of different people, joined with the mode of action of various occasional causes, than to any specific difference in the nature of the virus, or essential idiopathic alteration in the state of the whole circulating fluids.

It has been conjectured by some writers on the diseases of the skin, that the LYMPH of the blood, or perspirable fluid, may be de-
tained

tained under the cuticle by the adhesion or introduction of any foreign matter at the extreme superficies of the skin, which foreign matter might occasion an obstruction of it, at its passage through the extremities of the perspirable vessels, or in some way or other render it too thick to pass through the cuticle, and that therefore it must necessarily become the cause of its being effused under it.

But when we well consider the complicated organization connected with the cuticular surface of the human body, either for the admission of something from the atmosphere by the operation of the absorbent vessels, or for the emission of what may be excrementitious in the habit, through the function of the exhalent extreme arteries, it will be found very difficult to explain the mode of action of external offensive matters, when applied to, or admitted by, the superficies of our animal machine.

Among such local remote causes may with propriety be mentioned ordinary uncleanliness, the negligent use of oleaginous matters,

matters, &c. as productive sometimes of impetiginous eruptions: and they may be reckoned among the common causes of obstructed perspiration, in the production of that kind of cutaneous eruption, which occurs most commonly, when the inflammatory acrimony, or irritation, prevails in the habit; as under such circumstances the system of capillary vessels are universally most irritable, and therefore in the skin most readily affected.

Children become particularly subject to eruptions from these causes, which mostly affect their hands and feet, and which are further promoted by these parts being frequently for a long time wet, and unattended to.

I have generally noticed, that both uncleanliness and oily applications have aggravated almost all kinds of inflammatory eruptions, and cuticular excoriations, particularly those of the erythematous and erysipelatous nature. On what principle such matters offend the cutaneous circulation and secretions may admit of dispute, but

but I cannot help thinking, that in some kinds of impetiginous affections, the ointments, which are so commonly made use of, tend to relax the diseased vessels of the part too much, after the fluids, which should have circulated in them, have acquired their local and noxious acrimony. I even suspect that oily applications, from the heat of the inflamed part, may acquire a rancid quality, and thereby give additional irritation to the eruptions and cuticular exoriations. If they ever do good, it is in particular constitutions, by their defending the inflamed and tender parts from the action of the atmospheric air.

But in most cases of cutaneous affections, no such occasional causes as the preceding can be supposed to operate in producing an impetiginous effusion, by an obstruction in the manner mentioned, occasioning either a rupture or an erosion of vessels. I am hence led, from not being fully satisfied with any of these explanations, to seek for some other *RATIO SYMPTOMATUM*, or *SYMPTOMATALOGIA*; and I am much

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disposed to attribute them to a diseased or impaired state of action in the cutaneous vessels themselves, which brings me to the consideration of the PROXIMATE CAUSE, and to the investigation of which I shall proceed in the next section.

DERMATO-

DERMATO-PATHOLOGIA.

SECTION IX.

THE PROXIMATE CAUSE OF IMPETIGINOUS AND EXANTHEMATOUS AFFECTIONS IS SEATED IN THE CUTANEOUS CAPILLARY VESSELS.

THUS far, in my humble endeavours to arrange and explain the hitherto commonly received pathology of cutaneous diseases, as founded on the doctrines of PLETHORA and CACOCHYMY, together with the few anatomical and physiological observations on the CUTIS VERA and its appendages, I have been much indebted to the various scattered opinions of authors, and others, on the subject, the best of whom have gone no farther than to have considered the PROXIMATE CAUSE as one

or other of the three following conditions of the skin, viz.

I. A depraved secretion of the sebaceous glands.

II. A morbid state of the bulbs of the hair.

III. A morbid condition of the cutaneous vessels.

THEY who have considered a SUPER-ABUNDANT ACIDITY, A PRÆTER-NATURAL SALINE STATE OF THE BLOOD, or some such cacochymic virus in the mass of the circulating fluids, and also THE DIMINUTION OF THE VITAL PRINCIPLE, as PROXIMATE CAUSES of cutaneous disease, have given their attention only to the general state of the habit, and have not at all thought of accounting for the local destruction of THE PARTS CONCERNED, and which constitutes the proper impetiginous disease.

To make THE LAST the object of our enquiry, would be the true, and only compleat, way of coming at, and accounting for, the whole of the symptoms of any disease, and of establishing the immediate or PROXIMATE CAUSE, on the knowledge of which, as I have hinted at before, our indications of cure, particularly in chronic affections, must necessarily rest; and surely it ought to be considered as of the first consequence on those impetiginous occasions, which sometimes may admit of being chirurgically treated by external applications, while a proper attention is paid to the general state of the habit, and to the removal of the constitutional prædisposition.

Each of the above morbid states of the skin have been supposed by pathologists to be dependant on the action of some specific acrimony thrown upon the surface of the body, from its being general through the whole of the circulating fluids. I must however here observe, that DR. MILMAN'S *new opinion of the source of the scurvy* must be received as an exception to this general observation;

observation, and with which I was not acquainted, till I lately read his essay on that subject ; but as it has been confined to that particular disease, it cannot, and it has not been, received by practitioners, as a general pathology of impetiginous affections.

As these doctrines and proximate causes do not appear to me to explain the whole of impetiginous pathology, or satisfactorily and fully to account for cutaneous affections, either idiopathic or symptomatic, I shall proceed with some degree of confidence, being clearly of opinion, that the aforementioned morbid states of the skin are no other than the necessary constituents of the disease, and cannot with propriety be considered as the proximate causes.

I would wish my reader to carry his ideas somewhat farther, and endeavour to agree with me; and even, by more attentive observation and reflection, to exceed me, in my attempts to investigate THE CAUSE of this depravity in the cutaneous secretions, and of the several morbid states connected with the CUTIS VERA, namely,
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of the sebaceous glands, the bulbs of the hair, and the exhalent or perspirable vessels. I think it will be advancing nearer the truth.

I am encouraged in this attempt, and to recommend it to the attention of EVERY PRACTITIONER, from the apposite tendency of the opinion, which so many writers have taken up, namely, that the matter of perspiration, or in other words, the contained fluid of the most extreme cutaneous arteries, and other capillary vessels, is the chief agent of the supposed impetiginous acrimony.

This pathological part of the old doctrine so opportunely supports my idea, that I think if they are right, and I can succeed in my endeavours to account for the generally admitted morbid condition of the cutaneous fluids and secretions immediately connected with the vessels, on a fair physiological and pathological principle, it will be found the best ground, strictly speaking, on which we can establish the PROXIMATE CAUSE of most, if not all, of these external eruptive affections.

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I am however fully aware, in undertaking this investigation, and on seriously considering how complicated the structure of the CUTIS VERA is, and how numerous the offices are which it has to perform, by the invisible action of the various minute organs of which it is composed, that it would be found a difficult task by any one, whatever advantages he might possess from the experience of years, and with the best opportunities for making observations, to convince the still longer experienced, and probably prejudiced, reader, that a diseased action of either of its component parts could of itself alone be a sufficient cause to produce the various morbid appearances of the skin, which we are every day meeting with ; and that he will still be inclined to admit, from the force of habit, and a familiar acquaintance with the old doctrines, the probability of a general acrimony being concerned, as the ancients have always supposed, in the production of almost all cutaneous diseases.

Though prepossessed with the idea, that the long experienced practitioner will not easily

easily become a convert to my new opinions on this subject, still he is to be admitted as the most proper judge of the facts, and of the propriety of the reasoning made use of in its support, and if he but HESITATES between the two, namely, the old doctrine and the present one, I should look on IT as some kind of victory over his old habits, and his old opinions.

But if THIS should not even be the case, let me warmly recommend the young reader to exclaim with me, “NON PROGREDI EST REGREDI,” and with POPE, “TIS BUT A PART WE SEE, AND NOT THE WHOLE;” and so it will remain, I fear, after at least all my endeavours, and observations.

DERMATO-PATHOLOGIA.

SECTION X.

ON THE UNIVERSALITY OF THE CAPIL-
LARY VESSELS, AND ON THE SYM-
PATHY BETWEEN THE EXTER-
NAL AND THE INTERNAL.

I think it very necessary in this place to observe, that, on the present occasion, I content myself with offering to the reader the following reasoning as a ground for a GENERAL HYPOTHESIS OF IMPETIGINOUS DISEASES, hoping at some future period of my life, after I have more attentively and experimentally considered the subject, to make the proper application of it, in a particular, and perhaps *nosological*, manner, to each of the various chronic affections of the skin,

skin, which will admit of being characterized as a specific GENUS of cutaneous disease.

This must require additional practical observations, and occasion me some trouble; but in which I should be very considerably assisted, by being obligingly favoured with the remarks and experience of practitioners, in general, on this interesting branch of medicine.—To proceed with some reflections on the universality of the vessels concerned.

It seems to be a point universally agreed to, that, from various circumstances in the animal œconomy, a singular connection or consent takes place between the stomach and the outward surface of the human body, especially, from the several phænomena observed, when there is the disposition to the PYREXIAL STATE of the system. It THEN very strikingly appears, that the tone of the organ of digestion is found to be dependant on the tone of the cutaneous organ; and on the contrary, that

an atony of the one has a corresponding connection and agreement with the atony of the other : and this established sympathy is not unfrequently observed, when the constitution labours under a cutaneous disease, strictly of the chronic kind.

This striking sympathetic operation between parts, so apparently distinct from one another, claimed much of the late celebrated PROFESSOR CULLEN's attention, and he used to make impressions, even to astonishment, on the minds of his hearers, when he scientifically laboured at his lectures to explain, on what principle this constitutional connection of external and internal parts took place.

In the pathological view of the doctrine of fever, as made publicly known in his FIRST LINES, he has placed the atony of the former corresponding to the atony of the complicated cutaneous organ, in a sympathetic action of the muscular fibres of the stomach itself, with the muscular fibres
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in the extreme vessels on the outward surface of the body.*

When I was some years ago engaged in investigating this doctrine of febrile sympathy, I made it a question, at least in my own mind, whether the muscular fibres of the stomach were in an atonic state, at the time this sympathetic affection was supposed to take place.

Admitting the consent between the stomach and the skin, I then endeavoured to explain it by a probable connection of parts more similar, to wit, between external and internal vessels of the capillary system; finding it difficult to allow, that it could take place between parts so evidently differing in their structure and proportion, as minute vessels, and large muscular fibres.

If DR. CULLEN has been correct and right in fixing the seat of this sympathy in muscular

* See DR. CULLEN's particular expression in a letter to the author, page 124, in the second part of his TREATISE ON SYMPATHY.

cular fibres, I surely cannot be wrong in supposing it most probable, and most natural, that it should take place between muscular fibres of the same size, and in organs too with the same properties and uses.

I shall here therefore beg leave to extract my opinion, respecting the supposed sympathetic connection of the internal and external extreme vessels, from the treatise on sympathy which I published eleven years ago, and which I THEN wished, when too late, to have had considered by every candid reader, as *academic effusions* on the subject, though I STILL feel it, in its application to medical principles, as interesting to myself as ever.

Let me further observe, that although I may, for the present, seem to my reader to have wandered entirely from the object, by having entered upon the doctrine of febrile atony and spasm, and an explanation of the pyrexial affections of the stomach, yet I hope it will hereafter be satisfactorily made to appear to him, that they are connected with the subject of the present essay,
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in as far as they do mutually concern the cutaneous vessels, in the production of eruptive diseases.

I have there said,

First,—"That if a debility of the nervous system, from whatever cause induced, occasions a weakened action of the heart and arteries, this must necessarily and principally be felt in the terminations of the arterious system, namely, the systems of capillary arteries, and secretory vessels. I have therefore considered the ANOREXIA, which so generally attends the beginning of fever, as depending on an ATONY of the extreme vessels, and a diminished action of the villous glands, of the stomach."

Secondly,—"That if it can be reasonably supposed, that the continuance and increase of the general debility are attended with a proportionate atony in the extreme vessels; and that the spasm of the
" extreme

“ extreme vessels takes place, more or less;
 “ according to the extent of the atony in
 “ them, then I have concluded, that the
 “ NAUSEA depends upon a CONSTRICTION
 “ formed, in consequence of the increase
 “ of atony in the vessels of the stomach.”

Thirdly,—“ That if the continuance
 “ and increase of the general constriction
 “ of vessels, together with the total cessa-
 “ tion of the *proper* function of the stomach,
 “ can be justly considered as a sufficient
 “ cause to rouse the VIS MEDICATRIX
 “ SYMPATHIÆ to her salutary exertions,
 “ then I should consider the VOMITING
 “ as the RE-ACTION of the stomach and
 “ muscular system, completely suited, in
 “ most cases, to restore to its due action that
 “ important organ, THE ORGAN OF DI-
 “ GESTION.”*

From the frequent instances of the sto-
 mach being not only affected by, but con-
 nected with, cutaneous diseases, and which
 disordered

* Corollaries from pages 222 and 223 of the TREATISE
 ON SYMPATHY, 1781.

disordered state of it would seem equally, on such occasions, to depend upon the supposed vascular connection, as well as the condition of the cutaneous vessels, I have thought the preceding corollaries were pertinent to the subject, and would serve to elucidate my supposed vascular consent of parts.

For the arguments at large in support of this opinion, I must beg leave to refer the reader to the aforementioned treatise; observing, however, that, on the present occasion, we are to consider the general debility of the muscular system, when connected with a chronic cutaneous affection, as arising from a derangement of the inherent principle of the muscular fibre, independent of the *sensorium* and nervous system.

This supposed connection of extreme, or capillary, vessels seems to me to be quite consistent with the laws of the animal œconomy, and the universality of the sensitive principle, and is supported by the organization of the parts concerned: therefore, whether it be under a proper febrile,

or only a cutaneous, affection, that the sympathetic irritation takes place, I am led to consider the occurrence of the inordinate action of the stomach in exciting vomiting in the first case, *the febrile*, or of its impaired function, and morbid condition in the other, *the cutaneous*, as arising from a deranged balance and connection in the system of extreme vessels: in the first instance attended with fever and vomitings, because the affection of vessels is general: in the *other* without fever, but with impaired appetite, or the stomach otherwise disordered, because they are but partially affected, and do not call up, or require, the increased action of the heart and arterious system, or the exertion of vomiting, to remove a general atony and spasm on the surface of the body.

We very frequently become witnesses to partial affections of the nervous system, in all parts of the human body, varying either from the degree of excitement or collapse, and accordingly putting on the appearance either of inordinate and spasmodic actions, or of a paralytic state of the part affected, as
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the one or the other prevails, without the *SENSORIUM* being in any way concerned, or even apparently disturbed.

Why should it not be as natural, and therefore as probable, that a part only of the system of capillary vessels might be liable to its specific local diseases, arising from their own organization, and marked irritability, independently either of morbid matter, or the function of the heart and larger arteries, and yet not unconnected with the general laws of the circulating system, or the spirit of the animal œconomy?

This doctrine appears, in my humble opinion, to hang very well together, and I shall accordingly attempt some further proof and illustration of it, by some additional observations on the organization and action of the small vessels.

In as far as I have considered the production of eruptive diseases, attended with fever, as depending on a connection be-

twcen external and internal extreme vessels, it is proper to observe, that the presence of such a system of vessels in the stomach and intestinal canal may very confidently be inferred, and I am sure cannot even be doubted, from the frequent instances of large serous secretions, or, more properly speaking, effusions, taking place in them, and of their being very quickly evacuated, either by a vomiting or a *diarrhœa*, according to the seat of the affection, or the action of the remote and occasional causes. In fact, they are the common effects of emetics, and purgative medicines, by their *stimulus* on the extreme vessels, particularly when the latter are of the drastic kind.

That an established balance, a *formula pacti insita inter vasa minima*, takes place between the internal and external capillary vessels is made further evident by several morbid changes, which occasionally occur in the system, after the detrimental effects of some occasional remote cause. Thus, to mention a common instance; a suppressed perspiration, from the undue operation of atmospheric cold, is very frequently followed

lowed by a laxity of the intestinal canal, which commonly prevents a pyrexial state of the system; on which occasion it is curious to observe, that the stomach does not sympathise with the general spasm on the surface of the body.

Again; when a diarrhœa from such a cause is imprudently checked, we either find the pyrexial state brought on, or if that should not take place, so as to overcome, by the operation of the *VIRES MEDICATRICES NATURÆ*, the vascular constriction on the outward surface of the body, the redundant serosity is thrown upon some cavity, by the increased effusion from the exhalent arteries.

On these principles we may clearly account for the occurrence of a puerperal *ASCITES*, after the suppression of a diarrhœa; and for many other diseases, as the sequelæ of some other affection.

I shall in the next place take the liberty to say, that serious attention is due to what I am next going to observe, namely, that
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the idea which is here taken up, of an established connection, and occasional derangement, in the circulation of the capillary vessels in general, is of more importance to the HEALING ART, than may at a first acquaintance strike the reader, and will, I think, on more serious and minute investigation, account for the PROXIMATE CAUSE of many other, hitherto inexplicable, diseased states of the human body.

But the full consideration of this opinion I shall reserve for the subject of a future essay, in which I mean to make the following question the ground of some general pathological reflections.

“ May not certain phœnomena of disease be ascribed to a loss of balance in the circulation of the capillary system IN GENERAL ? ”

I shall however make one observation at present, connected with those reflections, to wit, that I shall, on that occasion, consider the human body as having properly two surfaces, namely, an outer surface
and

and an inner surface. The former will be divided into the cutaneous :—The oral, nasal, and faucial :—and the pulmonary. The latter into the ventricular and intestinal :—The vaginal and uterine :—and the urethral, vesicular, and nephritic.

This division will be made to appear properly connected with the supposed balance in the circulation of the capillary, or extreme, vessels, as necessary to the healthful state of the system ; and as one of our first anatomists* has been of opinion, that several of, if not all, these parts are endowed with an EPITHELION, a membrane, or membranose surface, analogous to the cuticle, it renders the supposition of a connection, or relation of their diseases, with the balance of the capillary circulation, the more probable, and the more important.

I shall briefly mention the principles, on which DR. MONRO has supported this opinion.

He has compared the villous coat of the human intestines to the *cuticula* of the external

* The late DR. ALEXANDER MONRO

ternal surface of the body, and properly therefore considers it as a continuation of the *latter* from the lips, over the mouth, tongue, and *fauces*, and through the *œsophagus*, stomach and intestinal canal.

He defends this analogy by the following circumstances :

I. They are both pervious to fluids, and admit of other passages through them.

II. They are both liable to be thickened from mechanical causes acting on them.

III. They are both assisted in defending the parts they cover, from the action of stimulant matters, by a mucous or sebaceous fluid.

IV. They are liable to be diseased on the same principle, from abrasion and inflammation.

V. They are both equally incorruptible, and are principally intended to defend the tender surfaces they cover.

Lastly,

Lastly,—They are both easily and quickly regenerated.*

I next proceed to the irritability of capillary vessels.

* See MISCELLANEOUS REMARKS ON THE INTESTINES, by the late professor MONRO, in the fourth volume of MEDICAL ESSAYS AND OBSERVATIONS revised and published by a society in EDINBURGH.

Q · DERMATO.

DERMATO-PATHOLOGIA.

SECTION XI.

ON THE IRRITABILITY OF THE CAPILLARY VESSELS, AND ON THEIR BEING LIABLE FROM THEIR ORGANIZATION TO ATONY, AND EVEN PARALYSIS.

A morbid or atonic state of the *epidermical* vessels, by which *term* I mean to include those, which are equally connected with the rete mucosum as well as the cuticle, may either depend upon a general debility of the muscular system, or a partial one of the vessels of the parts affected; and such an atony of the extreme capillary vessels is, I think, the immediate and leading cause of the derangement in their circulation.

This

This atonic condition of the vessels lays the foundation of the future cutaneous disease, which is either impetiginous or exanthematous, *i. e.* either squamous or pustular, according to the degree and extent of the vascular debility, and the nature of the constitutional temperament.

The perspirable exudation is materially concerned in this supposed vascular debility of the skin; for it appears reasonable to conclude, that a healthful action of the capillary vessels is necessary for the duly promoting, or carrying on, this exudation, and, as it may equally be called, insensible perspiration. The same vascular action must in like manner be requisite to the duly supporting the several secretions going on in the skin.

The structure and organization of the extreme vessels corroborate this opinion; for that they are living parts of the animal machine, and not simple tubes or hollow vessels mechanically acted upon by a distant organ, the heart, is now clearly demonstrated by the attentive observations of

anatomists ; and their irritability is also so well established by various experiments, and judicious reflections, that no physiologist can for a moment hesitate to pronounce them, as subject to excitement and collapse, or in other words, to atony, spasm, and paralysis, as any other organized and living part of the human body.

That RATIONAL PRINCIPLE implanted in the constitution of man for his earthly preservation, which has been called by physicians NATURE, and the AUTOCRATEIA, seems to have considered this vascular irritability as so important to the well-being of the animal œconomy, that SHE has every where furnished the extreme parts of the circulating system, with a greater proportion of muscular fibre, and of course with a greater proportion of HALLER'S *natura irritabilis musculi*, seu *irritabilitas musculi*, than belongs to any other arterious vessels.

It appears to me most probable, that the healthful state of all the minute parts of the skin, and their secretions, and also the
proper

proper circulation of the sanguineous and ferous fluids through them, depend entirely upon the ordinate action of this muscular irritability of vessels, with but little, if any, aid from the conjoined, and in them invisible, operation of elasticity.

This muscular organization, and sensibility in the extreme vessels, is, I believe, the spring and occasion of the well known sympathy of the stomach with most cutaneous diseases. We mostly find, that either *anorexia*, *nausea*, or *vomitio*, attends them, when there is even no proper pyrexial state observable; the *one* or the *other* according to the degree of the general atony present, the extent of the cutaneous affection, or the peculiar irritability of the temperament; I have sometimes thought the slight pyrexial state has been a *vis medicatrix* striving to remove the affection, and loss of balance.

These ventricular affections, when combined with cutaneous eruptions, would appear to me, to immediately depend, in the exanthematous, as well as the impetiginous diseases, on the muscular sensibility
and

and consent of capillary vessels, varying in degree according to the peculiar state and disposition of the system, under the different temperaments, the sanguineous being more likely to be attended with a high vascular excitement, or irritability, than the melancholic, or atrabilious as the humorists and galenists would term it, while each specific constitution is liable to its particular *species* of eruptive, and other affections of the skin.

That a debility of the epidermitical capillary vessels may lay the foundation of cutaneous eruption, will appear, I trust, to my reader still more probable, from what has occasionally been observed to happen in fevers of the intermittent kind.

It has been taken notice of by some pathologists, that such an eruption has sometimes accompanied the paroxysm of an intermittent; of which phenomenon I shall beg leave to offer the following explanation, as consonant to the CULLENIAN DOCTRINE of fever, namely, that the re-action of the system had not been sufficient for the entire
tire

tire removal of the spasm or constriction of all the cutaneous extreme vessels, and that such a failure in the operation of the *vires medicatrices* would be necessarily followed by a detention of the perspiratory matter in certain vessels, which would act with its usual stimulus on some one part or other of that complicated organ, the skin.

Though such eruptions, when occurring with the paroxysm of an intermittent fever, are to be looked on as no more than *symptomata symptomatum*; yet they have given rise to some *species* of that fever, which nosologists have distinguished by the names of TERTIANA URTICATA, and TERTIANA MILIARIS.

When we come to give full latitude to the importance of the system of capillary vessels, in the production of all pyrexial diseases, we shall have good reason to suspect, that the pleuritic, arthritic, and other affections, occasionally occurring with intermittents, are owing to a continuance of the spasm in the internal extreme vessels
of

of the parts so affected, and occasioned by a loss of balance in the system of capillary vessels in general.

In very universal cutaneous affections, even of the chronic kind, when the irritability of the constitution is very great, the excited action of the stomach producing vomiting may be reasonably considered as the operation of HALLER's *vis insita musculi*, and as a *vis medicatrix* to restore to its due balance, in the parts where it is morbidly deranged, or destroyed, the circulation of the system of capillary vessels, in as far as the action of vomiting, or the effect even of a nausea, has very evidently a tendency to rouse and increase the action of the heart and the arterious system, and thereby remove the debility of the cutaneous circulation, which supports, as well as, *a priori*, occasions, so many of the impetiginous affections. By administering medicines in the confluent small-pox on this principle, about the seventh day of the eruption, I have seen in twenty-four hours
a very

a very favourable alteration in the appearance of the disease, by the evident symptoms of an increased cutaneous action.

I shall next proceed to consider, more fully, the supposed impetiginous atony of the extreme cutaneous vessels, by taking a view of the several remote causes, which may produce it.

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DERMATO-

DERMATO-PATHOLOGIA.

SECTION XII.

THE REMOTE CAUSES ACT WITH A SEDATIVE EFFECT IN THE PRODUCTION OF IMPETIGINOUS DISEASES.

IT has been ingeniously advanced by PROFESSOR CULLEN, that this muscular atony of the extreme cutaneous vessels laid the foundation of fever, and depended on a general debility of the nervous system; and this opinion forms the basis of all his *pyrexial* doctrines. But from the opposite nature of some of the commonly admitted remote causes of fever, the operation of them, in bringing it on, would appear, in some respects, to be different. I cannot, therefore, readily admit, that the same regular connection, between cause and effect,

effect, takes place in every case of fever, to wit, in the production both of the putrid, and inflammatory fever.

It must however have appeared to others, as well as to me, that the atony of the capillary vessels is incapable, of itself alone, to produce this general febrile effect, and therefore, upon DR. CULLEN's pathological principle, it has been admitted, that a constriction or spasm of the atonic vessels is essentially necessary to constitute the proximate cause of PYREXIA, and from the manner in which it has been supposed to take place by DR. CULLEN, it must *a priori* be concluded, that the very terminations of the extreme cutaneous vessels are, at its commencement, the seat of the constriction.

But the vascular atony, in the pathology of impetiginous affections, which I am attempting to establish, being unconnected with fever, and only partially impairing the healthful state of the skin, is, strictly speaking, of the chronic kind, or attendant

on a chronic disease, and is not to be considered as accompanied with the supposed constriction.

The atony on this occasion is to be viewed in the light of a proximate cause of such diseases, by its being the immediate agent of a languid circulation of the serum or lymph, and as only producing either a plethora of the minute cutaneous vessels, which may endanger a rupture of them, or when it extends to paralysis, a local acrimony of their contents, as the natural consequence of stagnation, under the cessation of their proper circulation.

This *chronic debility* of the extreme cutaneous vessels, on which I have supposed impetiginous diseases principally to depend, may be a local indisposition of the moving powers, independent of the general circulation, and then *it* is a proper idiopathic affection; but *it* may equally arise from a general debility of the muscular system, and then *it* should be considered as a symptomatic affection.

That

That this may also appear to my reader probable, and more evident, I shall in this and the following sections attempt to shew, that the remote causes, in most cases of cutaneous affections, seem to operate, by inducing more or less of a debility, in the whole system of the MOVING FIBRES.

Before I proceed to the separate enquiry into the nature of the several remote causes, I shall consider it as generally admitted, that debility primarily depends upon the weakened energy of the brain and nervous system, immediately connected with the system of muscular or moving fibres, and that this is necessarily attended with a proportionable debility in the heart and artetious system, whose functions so much depend on muscular energy:—that this dependence is kept up by the mutual interest, which the nervous and muscular systems have in one another, and with all the functions of the animal œconomy:—and that in consequence of the atonic affection of the heart, and, in a slight degree only,

only, the larger arteries, under a general muscular debility, the extreme arterious vessels, from their far greater proportion of muscular fibre, are necessarily and principally affected.

We cannot enough admire the beautiful and life-securing dispensations of PROVIDENCE, in the structure and organization of the arterious system of an animal machine, the extremes of which have been evidently intended to depend entirely for their action on muscular energy.

All know what a powerful muscular organ the human heart is, acting *independently* of the SENSORIUM and nervous system, and proportioned always to the bulk of the animal. By it begins the important function of the circulation of the blood.

It was also equally important, that the blood should be secured from stagnating at the extremities of the arterious system, and
therefore

therefore NATURE has admirably provided it with a sufficient quantity of muscular action, in the structure of the capillary arteries, in order to propel the vital fluid into the venous system, and to promote the necessary secretions and evacuations.

But observe, that the intermediate or central course of the arterious part of the circulation seems to have been constructed nearly without muscular fibre, and appears to me, for a very wise reason, entrusted almost solely to the power of elasticity in the vessels.

WHY HAS IT BEEN SO ORDAINED?

I am strongly impressed with the idea; that, from the nature of an animal body, and the necessity of having it endowed with high sensibility and irritability, it would have been impossible to have long preserved it from accidents and disease, as the consequences of the natural and necessary excitement in the system of muscular fibres, if the larger arteries had been proportionably muscular in their structure with the extremities,

tremities, or capillary vessels, of the arterious system: for then either atony or spasm, occurring in any large artery of the human body, must have soon proved fatal to the existence of man, or at least have subjected him to many other lingering diseases, according to the importance and size of the artery, which might then have been so affected.

It has therefore been wisely, and to me clearly, so ordained, that such serious and dangerous interruptions to the circulation of the blood, the *SINE QUA NON* of life, either from atony or spasm, might not happen.

This singular construction; and organization of the arterious system, offer to me a very just ground to conclude, that there is a natural and established principle of sympathy between the heart and the capillary arteries, which very probably lays the foundation of ALL PYREXIAL DISEASES.

The above pathological reasoning on muscular debility will accord well with the principle of some exanthematous affections, and with also many of the impetiginous kind, when the remote causes act by first inducing an internal debility of the system.

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DERMATO-

DERMATO-PATHOLOGIA.

SECTION XIII.

ATMOSPHERIC COLD OCCASIONS IMPETIGINOUS AFFECTIONS.

I shall begin with ATMOSPHERIC COLD, externally applied to the human body, as the most frequent remote cause.

I shall first observe, that COLD has been esteemed as one of the remote causes of PYREXIA, but it has been doubted, whether it ever produces idiopathic febrile affections of itself alone. Either contagion or *miasmata* have been supposed necessary concomitants, to occasion the various kinds of pyrexial complaints, which we meet with.

But

But as fever does not accompany most of the idiopathic affections of the skin, either erysipelatous or impetiginous, and when any slight degree of it is occasionally observable, it is to be considered as arising from the general sympathetic state of the habit, from an irritable idiosyncrasy, it then would appear, that atmospheric cold could be alone a sufficient cause, in most cases, to produce cutaneous eruptions.

This it may do by either its sedative, or its astringent power, locally affecting the skin. We ought therefore in all cases, where much of a pyrexia attends exanthematous affections, to suspect, that both cold and *miasma* have acted in conjunction, on which occasions I believe it will be found, that some degree of fever precedes the appearance of a cutaneous affection.

When *miasma* has not been concerned in the production of the erysipelatous or impetiginous complaints, much fever would then appear unnecessary, as cold alone will only produce a topical and temporary depravity of the cutaneous exhalations and

secretions, which the skin's own inherent powers may in due time be capable of removing, without any PYREXIA.

Though external cold will readily be admitted as a principal remote cause of impetiginous diseases, from having been considered so by most authors, still it may be made a question how it locally acts? *i. e.* whether, in the production of them, it acts topically, with a sedative effect? I am of opinion it may, without its local operation disturbing the whole of the functions of the system.

But admitting, that a simple atony of the epidermitical and cutaneous vessels is too hypothetical, may not atmospheric cold occasion a CONSTRICTION in some one part of them, which will, by impeding the insensible perspiration, detain, or render stagnant, the LYMPH of the blood, and thus give rise to cutaneous eruptions? for when produced by such an external cause, IT may be explained on a different principle, than when it arises from any remote or occasional cause,

inwardly

inwardly affecting the action of the heart and arterious system, and so producing fever.

The *universal* operation of external cold on the human body, by an astringent effect on the extreme cutaneous vessels, would most probably occasion the true *SYNOCHA* or inflammatory fever, without the admission, into the system, of any atmospheric *MIASMA*. But the *partial* operation of it, on the outer surface of the body, would only cause a temporary interruption to a part of the cutaneous circulation, and would thus account for many different kinds of exanthematic affections; particularly would explain the impetiginous vesicles of the *PEMPHIGUS*, in which case the habit is but little disposed to fever; and also the erysipelatous eruption and inflammation, as occurring from a similar remote cause, operating locally, when the constitution had been heated by any violent exercise, under a more inflammatory state of the system; and therefore it is, that we most frequently meet with erysipelatous affections in the sanguineous temperament.

Thus,

Thus, every man's observation confirms this pathological explanation; and we all therefore find, that, agreeable to this hypothesis, the extreme parts of the human body, which are naturally most exposed at all ages, and in both sexes, either to the sedative or the astringent operation of atmospheric cold, are most frequently seized with these diseases, and are also most liable to the ordinary impetiginous affections; to wit, the hands and arms;—the ancles and legs;—and the face and chest. There must be some fixed principle for this. The fact with me, at all events, militates strongly against the doctrine of a cacochymic state of the whole mass of blood.

The debilitating and other morbid effects of extreme cold on the animal fibre, and particularly from its immediately acting on the cutaneous emunctory, and its irritable secretions, may be further aided, and rendered more evidently noxious, by the addition of HUMIDITY in the atmosphere; and from their so frequently occurring together, they have been considered by most writers as forming the most common, and the

the most powerful union of remote and occasional causes, in the production of scorbutic and leprous affections. But when the prædisposition from inherent temperament favours their operation, they cannot fail of acting with the most serious consequences, to the moving fibres of our animal machine.

It may also be further observed, that the light and dry air of the atmosphere is rendered considerably colder, in its effects on the outward surface of the human body, by the addition of MOISTURE to the skin, from any accidental application of it, or from wet apparel imprudently kept on. This effect is most certainly founded on that principle in physics, that evaporation increases the power of atmospheric cold.

But putting the humidity of the atmospheric air, in contact with the superficies of the human body, out of the question, on the present occasion of considering the remote causes of, strictly speaking, impetiginous diseases, I am still of opinion, that EXTREME COLD will certainly, of itself, produce

produce atonic effects on the circulation of the extreme capillary vessels, which have been described as forming the *papillæ* of the *cutis vera*, and probably the net-work surface also, which immediately lies under the *epidermis* of the human skin : and when IT has been so long applied as to occasion death, I believe its morbid operation takes place by an action on all the capillary vessels of the pulmonary and cutaneous organs, producing an universal spasm of them.

DERMATO-

DERMATO-PATHOLOGIA.

SECTION XIV.

FEAR IS FREQUENTLY AN IMPETIGINOUS
REMOTE CAUSE.

FEAR has been mentioned as another occasional cause, acting by a debilitating power in the production of some eruptive diseases of the skin. It has been supposed to act instantaneously, by effecting a sudden collapse of the nervous or vital principle, and thereby weakening the circulation and muscular system, from their connection with the sensorium and nervous system; for it evidently deprives the skin, for a time, of its usual colour. In instances of its violent operation it has been

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succeeded

succeeded by vomitings, and by eruptions and efflorescencies on the skin.

These striking effects, still most probably occurring from peculiar cutaneous idiosyncrasy, some way connected with the constitution at large, may be accounted for on the supposition, that, by the diminished action of the heart and arterious system, causing a temporary spasm, or obstruction, in the system of capillary arteries and veins, on the outer surface of the body, a sudden check may have been given to the various secretions which are promoted in the skin by the healthful state of the capillary system, which interruption the action of vomiting, and the re-action of the heart and arterious system, by inducing some degree of a temporary pyrexial paroxysm, are intended to remove, in effecting of which sudden efflorescencies and eruptions have appeared on the skin.

Such cutaneous affections being suddenly produced, from an instantaneous and violent operation on the nervous and muscular systems

systems, are commonly of short duration, unless the debility, induced by the sedative effects of fear, from the high degree of the primary collapse, becomes considerable, in consequence of which more or less of a febrile state of the system must unavoidably supervene.

DERMATO-PATHOLOGIA.

SECTION XV.

HOW VIOLENT PASSIONS MAY CAUSE IMPETIGINOUS APPEARANCES.

SINCE violent passions of the mind have been mentioned by pathologists, as occasionally producing eruptive and other cutaneous affections, it is proper I should take some little notice of them.

Such mental paroxysms have the immediate effect of causing a very rapid circulation of the blood, of hurrying the secretions, and of increasing cutaneous irritability, which is rendered very evident by the sudden reddening of the skin. These effects have been generally allowed to be followed

followed by a collapse of the whole system, as the natural consequence of the previous inordinate excitement of the sensorium and nervous system, which necessarily leaves the muscular system, and of course the muscular action of the capillary vessels, incapable of immediately recovering their proper and healthful tone.

From a total debility thus produced, the proper balance in the circulation of the capillary vessels would appear to me, on the same general principle, to be deranged, which morbid condition may give rise to impetiginous appearances, either from the occurrence of an immediate and inordinate effusion of lymph into the interstices of the *membrana cellulosa* of the *cutis vera*; or, as the *sequela* of the cutaneous excitement, an ensuing local acrimony of the *serum* takes place, occasioned principally by its stagnation in the perspirable vessels, from some obstruction or loss of action in them, if not from a perfect *paralysis* of them.

Violent corporeal passions, great muscular exertions, inordinate indulgence of the
appetite,

appetite, &c. have all been known at times to produce such a temporary languor and debility of the constitution, as to be followed by those impetiginous appearances, which in the natural and quiet state of the system were not in general, to be observed.

The effects however of a full meal, in inducing a temporary fever, may, I think, be explained in a way, different from what DR. CULLEN was accustomed to deliver from the practical chair at EDINBURGH.

Before I take leave of the subject of the occasional causes, I shall offer one general observation, as applicable to all the various degrees of sensibility and irritability.

The more violent the action of the exciting cause has been, the greater will be observed to be the state of collapse which follows, and the local effects will be in proportion to the irritability of the part affected, *i. e.* the more irritable parts will
to

be soonest affected. Therefore, agreeable to this law in the animal œconomy, we can readily account, why the capillary vessels, on such occasions, should be most immediately, as well as perhaps permanently, affected; for, according to DR. CULLEN, “ it is probable, that the muscular fibres of the arteries become more irritable, as the arteries are more distant from the heart.”*

* FIRST LINES OF PHYSIOLOGY.

DERMATO-

DERMATO-PATHOLOGIA.

SECTION XVI.

CERTAIN STATES OF THE BODY AND
MIND PRÆDISPOSE THE SYSTEM TO
THE OPERATION OF THE VA-
RIOUS REMOTE CAUSES.

I THINK it may justly be said, that those states of the habit, which favour the operation of occasional causes, in the production of scurvy, equally form the prædisposition of the system to the occurrence of the various other impetiginous affections, which are ordinarily met with unattended with fever.

Among the circumstances enumerated by authors,* and taken notice of by teachers,
as

* DR. MILMAN, THOMPSON, and others.

as prædisposing the constitution to the operation of those many remote and occasional causes, which more immediately bring on scorbutic and leprous affections of the skin, are the following, viz. a convalescent state from preceding illness, particularly on recovering from fevers :—a sedentary manner of living, and the want of proper exercise :—and a despondency, or gloomy sorrowful state of mind, united to slothfulness and its train of hypochondriacal affections.

Intermittent complaints, and the too free use of mercurial medicines, have also been named as giving the prædisposition to different kinds of impetiginous diseases.

Under all these several circumstances the constitution acquires an habitual or permanent debility, from a diminution of the vital power, which secondarily causes, in the language of DR. MILMAN, a general debility of the muscular system.

When such is the prædisposing condition of the system to the acquiring of any particular disease, the following circumstances,

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in addition to those which have already been pointed out as remote causes, may very properly be mentioned, as frequent exciting and occasional causes of scorbutic and other impetiginous affections of the skin, viz. great fatigue of mind or body, from excess of thought or exercise:—food containing very little nourishment:—any cause suddenly occasioning a depression of spirits, or great grief:—and I may add, anxiety of mind alone, gradually brought on, by being long employed in any hazardous, or very interesting undertaking.

I have known this mental condition bring on scorbutic or leprous blotches upon the hands and arms, without there having been any particular prædisposition gradually acquired by any of the above named causes of that description and tendency; at least such a state of mind has greatly contributed to keep up this particular kind of impetiginous affection.

When the scorbutic affection has prevailed to a very great degree in our fleets and armies, BAD REPORTS have had such
a sudden

a sudden ill effect upon the sensitive principle of those who have had the complaint but slightly, that it has been very rapidly increased, from THEIR sedative and atonic effects on the muscular system, through the depression of the sensorium; and on the contrary, GOOD REPORTS, on the same occasions, have very considerably benefited those, who were labouring under the disorder to a very great degree.*

I have heard it mentioned, that it always forms a part of the system of good management in those scenes of danger and mortality, which attend on war, with the view of preventing the virulence and fatality of the scurvy, to guard as much as possible, both landmen and seamen, from every cause depressing their spirits: with this view they have been often indulged with extraordinary draughts of grog and other liquors, when on the eve of an engagement, not with the intent of their acting directly as antiseptics, but as cordials and

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tonics,

* Read MILMAN on the prædisponent and remote causes of the scurvy.

tonics, to raise the spirits, as well as to invigorate the body, and thereby to prevent the increase of the prædisposition to scurvy.

When all these circumstances are attentively weighed in the mind, they so convincingly support the opinion, that impetiginous affections in general are not diseases of the fluids, but of the solids, that I am led to fix their PROXIMATE CAUSE in an impaired condition or action of the motions and moving powers in the system of capillary vessels.

DERMATO-

DERMATO-PATHOLOGIA.

SECTION XVII.

UNCLEANLINESS AND THE USE OF AR-
DENT SPIRITS ARE EXCITING CAUSES
OF IMPETIGINOUS DISEASE.

BEFORE I entirely dismiss the subject of the remote and occasional causes, I must take some notice of two others, particularly affecting the lower classes of mankind.

Though these may be considered as of less acknowledged notoriety in the production of cutaneous affections in general, yet they are justly entitled to be looked on as provocatives of that virulence of disease, as well as obstinacy of CURE, by which our best endeavours are often, for a length of time, frustrated, when we undertake to effect

effect it : I mean uncleanness, and the free use of spirituous liquors. When these causes are daily operating, we seldom can do more than palliate, particularly if they should occur together.

These marks of inattention in so great a part of mankind, to the preservation of the health both of themselves and their offspring, are even in general of such duration, and have probably become so habitual with those who are given, or exposed, to them, that they might with propriety be viewed in the light of *external prædisposing*, rather than as occasional, causes.

When however uncleanness disposes much to the production of cutaneous eruptions, it is commonly joined with some other of the aforementioned occasional causes, or an hereditary evil disposition of the habit. It is indeed seldom that it acts alone, as some inattention in the person afflicted, to one or other of the NON NATURALS, commonly accompanies it. In this way we can account for the prevalence of scorbutic and impetiginous

nous affections in infirmaries, and crowded places of confinement, of every kind.

When uncleanness can be supposed to be the principal exciting cause of impetiginous affections, I can only account for its *modus operandi* by supposing, that it may occasion a local interruption to the healthy action and condition of the cutaneous capillary vessels at their terminations, probably by hindering a perfect formation of the epidermis and rete mucosum.

The fact has been observed by all. The PHILANTHROPIC HOWARD, in his account of the orphan houses at AMSTERDAM and ROTTERDAM, after having described the holes in the wall, in which two or three of our fellow creatures lay together, and after having noticed the want of air in all the rooms, speaks thus :

“ Many of the servants in these houses
“ are old and indolent ; the children
“ miserably nasty, and many of them
“ troubled with scorbutic and cutaneous disorders to a very great degree.
“ gree.

“ grec. On my observing this to
 “ some of the directors, they replied
 “ in words which gave me pain, and
 “ excited my indignation :”

IT IS THE HOUSE DISORDER ; ALL OUR
 CHILDREN MUST HAVE A SEASONING.

“ Thus do the physicians and governors
 “ excuse the abuse of their trust. The
 “ consequence must be, that few of
 “ the children reach manhood, and
 “ that such as do are a feeble and
 “ sickly race.”

When I minutely consider the uses and importance of the CURTIS VERA, and all its appendages, in the animal œconomy, and their connection, directly or indirectly, with all the principal functions of animal life, or the sensitive principle, I am very much inclined to think with MR. HOWARD, that the want of necessary attention in parents, and others, who have the care of young children, to the outer surface of their tender and growing frames, by constant cleanliness and sufficient ablution, too
 certainly

certainly dries up, weakens, or impoverishes, while they are in their infancy, that SPRING OF HEALTH, A SOUND AND PERFECT SKIN, and which eventually deprives them of the full strength of manhood, when they reach that period of life, and to which they may have been hereditarily entitled.

I believe, that if such prophylactic means, as COLD WASHING, and COLD BATHING, were from birth universally attended to, in their full extent, we should soon lessen the number of the diseases IN PANDORA'S BOX, or at least weaken their power, and check their spreading contagion from generation to generation, when they escape from IT, ripe for destruction, and are scattered among the children of men.

The class of diseases, which THEN would lose its consequence in the magnitude of nosological system, would be that very tremendous one, founded on the CACHECTIC CONSTITUTION AND DEBILE TEMPERAMENT.

THEN scrophulous and impetiginous affections would prevail less and less, until their prædisposition, clearly founded on THE DIMINUTION OF THE VITAL POWER, and the DEBILITY OF THE MUSCULAR SYSTEM, would altogether cease.

THEN ANIMAL LIFE would feel itself unchecked, and undisturbed in ITS MOTIONS, and MOVING POWERS, and in the functions and operations of its glandular and cutaneous organs, so that SHE could prosecute their healthful actions and secretions, when freed from chronic and constitutional causes and defects, to the attainment of a long existence, and, perhaps, uninterrupted health.

ALL THIS might be the consequence of preventing debilitating causes from supporting the congenial weakness of constitution in that large proportion, THE INFANTILE PART, of mankind;—the period of life so fatal to the human species. THEIR WEAKNESS is not altogether to be attributed to the feebleness of their generation, but is to be looked on as natural to them,

them, at that tender age, from the fineness of their solids, and the necessary redundancy of their fluids.

Much more might be said in support of this digression ; but I must proceed.

In respect to the free use of SPIRITUOUS LIQUORS, I have but a few words to say.

Some authors have remarked, that those who have accustomed themselves to an indulgence in them, are not unfrequently liable to eruptions on the skin. The aged and infirm have them general over the body, but in the prime of life they more particularly affect the face.

I have observed, that these effects are more likely to be the consequence of their free use, when such people avoid taking with them a proper quantity of wholesome diet. Independent of their morbid effects on the action of the stomach, which have been allowed to be ultimately of a sedative
X 2 nature,

nature, there is no doubt but that they produce a general atony of the system.

The free use of ardent spirits may therefore be fairly reckoned on, as another remote or exciting cause, evidently occasioning epidermitical and cutaneous eruptions by their debilitating effects, and by their gradually destroying the call of the appetite, and the power of digestion.

DERMATO-

DERMATO-PATHOLOGIA.

SECTION XVIII.

SOME DETACHED OBSERVATIONS CONNECTED WITH THE LOSS OF BALANCE IN THE CAPILLARY VESSELS.

IT may with great truth be taken notice of, that in most of the ordinary cases of impetiginous affections, the marks of a general debility of the system are not readily observable, and when they occasionally are, they cannot be easily accounted for.

The signs of such a state are oftener passed over unnoticed, and the remote cause for such constitutional symptoms is not enquired after.

Yet

Yet even, on enquiry, so little information, on some account or other, is gained, that they would seem to depend upon some unknown, or unobserved, cause, producing a læsion of some one, or more, of the functions of the constitution, through most probably the *medium* of some debilitating affection of the PRIMÆ VIÆ.

It is not therefore to be concluded, because an evident cause of the general debility cannot be either clearly ascertained by the physician, or readily acknowledged by the patient, that such impetiginous disorders do not depend upon some remote operation, tending to the induction of such a state of the system.

Patients are not always very willing to explain, or lay open, either the imperfections of their constitution, or their habits of living; neither are medical men very much disposed to scrutinize narrowly into the conduct of their patients; particularly when the connection between cause and effect is not very easily explained, and often not even thought about.

These

These difficulties in the way of the practitioner may, in some degree, account for the little knowledge, which has hitherto been gained, on this particular part of our subject.

Agreeable to the aforementioned observations, it has been remarked by some authors, that those women who are liable to an irregularity of the menstrual flux, which has always been looked upon as, in some way or other, connected with a derangement in the healthful state of the system, are also very liable to be affected with cutaneous eruptions. They are generally, from what I have observed, of the inflammatory or pustular kind, occasioned by the irritable state of the true skin.

Some have been of opinion, that such affections have commenced from either *morbific matter*, or *plethora*, in the system, as the simple consequence of the suppressed *catamenia*. But then it must be admitted, that the *menfes* carry off something more than the simple redundancy of the habit;

a *something* noxious in the blood, which is an opinion I cannot at all coincide with.

It is more rational to consider menstruation, as an established function of the uterus, for a limited period of life, arising from its being a specifically organized part of the body, and not always to be under the guidance of the general habit, though occasionally connected in the following manner with the skin.

I am therefore disposed to think, that both the uterine suppression, and the cutaneous eruption, may be owing to one and the same general pathological principle, to wit, the want of due action, and its consequence, the unavoidable loss of balance in the capillary vessels, forming every where the extreme parts of the circulating system, and not entirely dependent on either a plethora or inanition of the constitution.

This pathology, as applicable to the present subject, permits me to say, that it is probable, that at one time, or under one state of the system, uterine vessels contain

tain a ferous, and in another state of the system, a sanguineous, fluid. This fluctuating condition of the uterine vessels holds out an apparent connection between the leuchorrhæal and hæmorrhagial states of the *uterus*, as depending on the general habit of the capillary system.

I cannot resist here observing, that my mind inclines me much to look on all those internal surfaces, immediately leading, by their external orifices, or more properly speaking passages, to, or through, the CUTIS VERA, (independent of their being furnished with any thing like to the cuticular membrane, or *epithelion*, as taken notice of before,) as analogous in their connection with the circulating system, to the outer surface of the body, and therefore subject to the same general law in the animal œconomy, which seems to me to have established a necessary balance in the system of capillary vessels, as important to all the healthful functions of the natural, though variable, constitutions of mankind.

TIME must prove, whether I am right in giving so great a latitude to this physiological doctrine; and it can only be done by the minds of men first admitting the possibility by analogous reasoning, and then proving, by facts and cautious induction, the probability of many other phenomena of disease in the human body, being dependent on such a pathological principle.

I shall make one other observation connected with this capillary balance of the system.

The air cells, or cellular surface, of the lungs, are very likely to be connected with, and affected by, any derangement in the cutaneous capillary circulation. In proof of this it may be mentioned, that eruptive diseases of the skin sometimes occur, which appear to alternate with pulmonary affections.

Such cases have been brought forward in support of the opinion, that a morbid matter

matter has prevailed in the system, and has alternately affected these parts. But this doctrine will not, in my opinion, last long *any where*, and has no just foundation.

Until, therefore, morbid matter is better explained, and better defended, than it is at the present day, I can give no credit to it, or the explanations founded on it; and am much inclined to an opinion, that the above alternate changes in a diseased constitution depend upon the morbid state alone of the capillary vessels of the parts affected, arising probably from the alternate operation of some debilitating cause, which may have disturbed the healthful balance of the system, in the volume of the circulating fluids.

What I think tends to support my opinion, in this explanation, is, that such a combination of affections is most commonly met with in young people, about the time of the *acme*, when the balance of the fluids is most readily affected, and certain natural changes should take place in the system.

When I come to observe more particularly on the diseases which are most prevalent in infancy, and to which man was exposed, and, indeed, with which ALL MANKIND, most probably, were afflicted, immediately upon, or let me rather say, very soon after, their birth into the world, it will appear natural, and, in fact, inherent in our constitution, to be daily exposed through life to the vicissitudes of external and internal diseases, and particularly to alternate changes between the cutaneous emunctory, and the condition of the alimentary canal.

DERMATO-

DERMATO-PATHOLOGIA.

SECTION XIX.

ON IMPETIGINOUS AFFECTIONS FROM
IDIOSYNCRACY OF THE STOMACH,
WITH THEIR EXPLANATION.

IT cannot be a matter of surprize to any one, who properly reflects on the multiplicity of impetiginous diseases, joined to the variegated form and constitutional temperament of mankind, that there should be some cutaneous affections, of whose nature and origin it is not easy to offer any explanation, and which would seem to proceed from a peculiar idiosyncrasy in the habit, and particularly of the stomach.

There are many practitioners, who have, at all times, observed, that some people
will

will very soon become affected with efflorescencies of the skin, after having eaten of salmon, herring, &c. or after having taken down certain matters offensive to their stomach, or digestion.

On this principle are antipathies formed *in some constitutions* to many kinds of aliments, which, with most other people, are in common use. If *such* of mankind were not constantly on their guard, we should more frequently meet with these particular cases of impetiginous affections, and efflorescencies of the cutaneous papillæ.

There is no article of the *materia medica*, or the *materia alimentaria*, but which may, at some time or other, in some particular habits, prove offensive to the stomach. As a proof of this, it has lately been mentioned to me, by a very near relation, that he knew a remarkable instance of this idiosyncrasy, in which honey, even in a small quantity, always occasioned a considerable nausea, soon after which, efflorescencies would appear in many different parts of the skin.

When

When these efflorescencies occur on such occasions, they take place without the transmission of any fluid through, or under, the cuticle: the seat of the affection appears, therefore, to be in the vessels probably connected with the *papillæ* on the outer surface of the *cutis vera*, in contact with the *rete mucosum*.

I should suppose, that such cutaneous appearances must depend upon something more than the indigestible nature of any aliment, or matter received into the stomach; and, therefore, have been very properly attributed to a peculiar idiosyncrasy of that organ, shewing itself by the established balance between the external and internal capillary vessels.

VAN SWIETEN, notwithstanding he laid great stress on the exciting effects of indigestible matters in the stomach, as aggravating the symptoms of the scurvy, by their irritating and weakening effects on the stomach, has still furnished us with a case of this kind, to prove that the idiosyncrasy sometimes takes place. He has mentioned
a case,

a case, in which he knew crabs claws immediately produce efflorescencies on the skin, on being received into the stomach.

These impetiginous effects, from ventricular idiosyncrasy, are commonly sudden: but there is good reason to suppose, that noxious *ingesta* of the stomach and intestinal canal may, on some occasions, operate *slowly*, in producing cutaneous affections, by the sympathetic connection of vessels. When *that* is the case, there is probably some difference in the seat of the cutaneous irritation, which I shall beg leave to explain in the following manner.

I shall, *in the first place*, observe, that when a foreign matter of the offensive kind is received into the stomach, and, from its apathy to it, or its peculiar idiosyncrasy, it deranges the sympathetic balance between the external and internal capillary vessels in a sudden manner, I am inclined to think, that the inordinate action takes place in the capillary vessels on the outer surface of the CUTIS VERA, carrying red blood, and connected

ned with the PAPILLÆ PYRAMIDALES, whose action for a time is increased, or whose circulation is impeded, without a supposed effusion into the cellular membrane, from rupture of vessels: and this I have known to have sometimes happened suddenly, in a particular state of the system, from the morbid effects of cold liquids, &c. received into the stomach.

But, *in the second place*, if any length of time elapses between the receiving a noxious matter into the stomach, and the appearance of a cutaneous affection in consequence of it, I am then disposed to believe, that, from its sedative, or other morbid, effect on the established connection between the afore said capillary vessels, the RETE MUCOSUM with its *epidermis* are most likely to be disordered, and afford the impetiginous SQUAMULÆ.

In the manner last described may be produced those leprous affections, which we are so frequently meeting with, in otherwise tolerably healthy habits, and which are most commonly of much longer duration, than

the sudden cutaneous efflorescencies, from the peculiar idiosyncrasy of the stomach.

Perhaps it oftener happens than is suspected, that ordinary food, when it disorders by indigestion, under particular circumstances of the constitution or temperament, may be an occasional cause, slowly exciting some kinds of impetiginous diseases.

Of the nature of this last described species of impetiginous affection I consider those cases, arising from some deleterious effects of copper, of which a full history will be given in the next, (or some future) volume of the *medical facts and observations*, published by my learned friend, DR. SIMMONS, and which I lately communicated to him. I received them from MR. W. DAVIDSON, apothecary, in *Queen Ann-street east*, by whom they were drawn up, and under whose skill and attention they had fallen. The facts were shortly the following.

A mother, with her four young children, and three young women who had visited her,

her, eat of pea soup, boiled in a tin saucepan, or vessel, but distributed to them with a brass ladle, which had not been used for some time, and which, when taken down, was coloured quite green with verdigris. They had imprudently used it without cleaning, or even wiping it. Two days after they were all affected with a cutaneous eruption of the leprous kind, more or less over the whole body, and very much amongst the hair of the head. Their stomachs were not observed to be affected: but the eruption was in exact proportion on each, to the quantity of the soup which each had swallowed. The eruptions continued coming out for five days; after that period they became browner and browner, and gradually disappeared, without leaving any mark on the skin: with, however, this exception, that the girl, who had eaten most heartily of the soup, continued to have more or less of the complaint two months.

This last curious circumstance, though an exception to the rest, very much supports the opinion I lately threw out, and

which, by more attention in future to impetiginous practice, will, I think, be frequently observed, namely, that many of the impetiginous affections of the leprous, and *lepro-herpetic*, kind, which we are so frequently called upon to treat medically, in the young, and otherwise apparently healthy, habits, may have arisen from some offensive *ingesta*, or foreign deleterious matters, topically noxious to the vascularity of the stomach, and intestinal canal, and, therefore, rousing the operation of the sympathetic irritability between the muscular fibres of the external and internal extreme vessels, either from a stimulant or sedative effect in the *primæ viæ*, which probably operates *too slow*, in most cases, to raise any suspicion in the mind of the practitioner, that such accidental, and perhaps trivial, causes should be in any way capable of deranging the balance of circulation, in the system of capillary vessels.

The reason of such a derangement may be attempted to be explained, at some future period, on the principle of a *VIS CONSERVATRIX SALUTIS*.

Before

Before I conclude the present section, I shall venture to account more fully for those very sudden efflorescencies on the skin, which have been before taken notice of, as the effects of the peculiar idiosyncrasy of the stomach; and I am encouraged to this attempt, from finding, that no better pathological explanation of such affections has been offered, which I know of, and which might be deemed in the full sense satisfactory.

Let the following, therefore, be received as a general one for such cutaneous appearances, founded on the foregoing observations and doctrine, and as more particularly expressing, than I have done before, the *modus operandi*, either from apathy or idiosyncrasy, of such offensive *ingesta*.

May it not be supposed, immediately after such offending matters have been taken into the stomach, that they act, in some particular manner, as irritating particles to the superficial vessels of that organ, which vessels, at all times, penetrate through the *villous coat*, and probably afford the gastric fluid :

fluid:—that they may even injure this *ventricular epithelion*, and perhaps occasion a temporary abrasion or destruction of it, and thereby expose the extreme gastric vessels to be too readily acted upon by the offending matter:—and that, from the sympathy and consent between the stomach and the exterior surface of the body, this singular idiosyncrasy causes, or, at least, materially assists in occasioning, a partial increased action of some of the capillary vessels of the *cutis vera*?

It is not impossible, but some medical men would rather incline to the opinion, that a sympathetic influence, exerted in the nervous *fibrillæ*, would better explain it; but then they cannot do this without the intervention of the brain. (Perhaps it would better explain ventricular affections from apathy only :) but I am most disposed to think the irritability of the extreme vessels so superior on such occasions, owing to the great proportion of muscular fibre in their structure, as to take the lead in the production of these kinds of cutaneous affections.

I think

I think this explanation will be made to appear more probable, by drawing an analogy between the operation of these offending *ingesta*, and the well known effects of nauseating doses of emetic medicines; for when such have been taken into the stomach, and are afterwards passing through the intestinal canal, they, of themselves alone, *i. e.* without the immediate assistance of diluents, will produce sweat, which alteration in the state of the skin we may venture to explain, by supposing, that either their sedative, or their irritating, effects on the internal extreme vessels, cause, by sympathy, either a relaxation, or an increased action, of the vessels on the cutaneous surface of the body.

If this analogical reasoning be fair, may it not be likewise supposed, that many certainly sedative matters,* when applied to the stomach, may check the vascular secretions

* I have, on some occasions, suspected, that opiates, when administered in various complaints, have unexpectedly disordered the system, and failed of their intended effect, on this principle. This point is worth attentive consideration in some constitutions.

cretions going on in it, and though it may be questioned, whether there is more than one, yet it must be admitted, that they may particularly affect or weaken that one, namely, the secretion of the *SUCCUS GASTRICUS*. And that, in consequence of a similar occurrence, from sympathetic irritability in the moving powers on the cutaneous surface of the body, by the natural consent of parts, the perspirable matter may be retained, and, by an after-acquired acrimony from stagnation, that it may produce this or that kind of cuticular eruption, according to the state of the cutaneous secretion, and the condition of the adjoining minute parts.

I think there is a probability of this being the manner in which some diseases of the skin are brought about. But till we are better informed by the experiments and observations of physiologists on the doctrine of digestion itself, all our reasoning by analogy on this subject may fall to the ground.

I am

I am still, however, most disposed to think, that the vascularity of the substance of the stomach, connected with the villous coat, is the true source of the secretion of that menstruum, which is supposed to promote digestion, and to be capable, after death, of destroying or dissolving the stomach itself; and that it is not, as some writers have imagined,* the office and the province of the *villous coat*, which, if PROFESSOR MONRO is right, (and I believe him to be so,) can only be looked on by the physiologist, and the physician, as a membranose surface, analogous to the *epidermis* of the CUTIS VERA, with, probably, a different appearance and condition, as belonging to a very variable organ, from the effects of its diurnal dilatation and contraction, as well as from its not being exposed to the effects and action of the atmospheric air.

It would be just as correct and proper, to say, that the perspirable fluid is the secretion

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* MOORE, in his ESSAY ON THE MATERIA MEDICA, 1792.

cretion of the cuticle itself. The terminations of ALL the extreme vessels require a *nidus*, as some support, as well as defence, to them, and *such*, I think, is the *villous coat*.

Nevertheless, examples of such sudden and singular impetiginous effects, from a peculiar idiosyncrasy of the stomach, on offensive matters being received into it, are rare: yet they afford a presumptive proof at least, that the established connection, between the stomach and the skin, takes place between the CAPILLARY VESSELS only, they being certainly the parts more immediately in contact with the offending ingesta, whether belonging to the *materia medica*, or the *materia alimentaria*, particularly as THEY must penetrate the *insensible* villous membrane, or, as it may now be called, VENTRICULAR EPITHELION, agreeable to DR. MONRO's anatomical opinion. Such vessels must, therefore, be the most readily affected.

The fact (for I will so call it) militates strongly against DR. CULLEN's opinion,
and

and explanation of the sympathy, as being occasioned by an atony, produced in the PARIETAL* muscular fibres of the stomach.

* For DR. CULLEN's particular observations on this point, see the DOCTOR's letter to the author, page 124 of the TREATISE ON SYMPATHY.

DERMATO-PATHOLOGIA.

SECTION XX.

THE SUMMARY OF THE NEW PATHOLOGY OF IMPETIGINOUS DISEASES.

I NOW feel myself in the situation of a sick man, anxiously arriving at the crisis of his disorder, the event of which is both to him and to his physician uncertain. So it will remain at present, I hope, between me and my LEARNED READER, until he has read through the present section, unless HE has already received such unfavourable impressions, as prognosticate to his own mind, that the theory cannot be upheld, and that the crisis of my address, and all the *preceding observations*, to him, do not deserve a SUMMARY, and should, therefore, fall to the ground.

I shall

I shall still look upon these *reflections*,

“Nuper sollicitum *quæ* mihi tædium,

“Nunc desiderium, curaque non levis.”

HOR. CARM. Lib. I. Od. 14.

as promising some satisfaction to me, if they but merit, in their present imperfect form, the reader's thoughtful investigation and enquiry.

But, to the point.

From all that I have been able thus briefly, and with attention, to collect, as important and interesting to the subject, from my own, as well as the observations and reflections of others, (and which I wish I could have had time to have better arranged, before I had sent any of it to the press,) I am led to conclude, that an obstruction to the circulation of the cutaneous and epidermitical extreme vessels, in some way or other occasioned, or supported, by an atony, perhaps even a paralysis, of them, constitutes the whole, or principal part, of the pathology of almost all impetiginous affections,

affections, or the eruptive diseases, SINE PYREXIA PRIMARIA, which may afflict the human skin: and which vascular atonic state I consider as their PROXIMATE CAUSE, and that IT has its foundation either on a general debility of the *muscular system*, or in a partially impaired or disturbed action of *the extreme vessels of the stomach* itself, and on some occasions, perhaps, of *those of the intestinal canal*, from a sympathetic connection of all *these vessels* with *those* of the TRUE SKIN, and its EMANATIONS.

To sum up the whole in a general way, I shall therefore venture to deliver it as my opinion, that the PATHOLOGY of CUTANEOUS DISEASES is as follows, whether they are to be considered as partial, or topical, affections of the TRUE SKIN, with ITS several internal as well as external appendages, and as such, IDIOPATHIC;—or as diseases properly SYMPTOMATIC of an internal indisposition of the system: for they should ALL be looked on as derangements of, or deviations from, the healthful condition of the CUTIS VERA, as affecting one or other, if
not

not all, of its appendages, and itself to be viewed, either as AN EMUNCTORY for the relief of the system at large, or as liable to its specific organic affections, independent of a præternaturally saline, or any other morbid, state of the blood, commonly denominated a cachectic habit; the whole brought about by the interrupted, or deranged, motions, and moving powers, properly inherent in the TRUE SKIN, on the principle of its muscular structure.

The SKIN, when viewed in this, its proper and important, light, ought no longer to be called a *common integument*, but should be looked on as an ORGAN of the first consequence to all the functions of HUMAN LIFE, and connected with ALL ITS DISEASES.

If I should seem to my reader to have gone too far at present, in applying THE DOCTRINE to *eruptive diseases, properly symptomatic of an internal indisposition of the system*, it arises from my mind being strongly impressed with the idea; AN IDEA I do not at present

present fully defend, but which ALL MEN in time may find arguments to support.

THE SUMMARY OF THE NEW PATHOLOGY.

THE REMOTE AND OCCASIONAL CAUSES of impetiginous affections operate with a sedative effect, and induce A DEBILITY of the nervous and muscular systems, whereby the VITAL FUNCTION OF THE HEART and arterious system, and the IRRITABILITY of the former, are considerably and particularly affected :——That this DEBILITY and IRRITABILITY, will be most readily felt at the EXTREME VESSELS every where terminating, but more especially in the CAPILLARY VESSELS of the PRIMÆ VIÆ and TRUE SKIN :——That, from their partial operation, a serous or lymphatic PLETHORA will be formed, and a STAGNATION or OBSTRUCTION of the PERSPIRABLE FLUID will take place :——That the DETENTION of this MATTER will in a given, though uncertain, time prove a STIMULUS to the TRUE SKIN, increase the

the action of the CAPILLARY VESSELS, and produce the DIFFERENT AFFECTIONS there occurring, according to the STATE of the effused and secreted matter, the PECULIARITY of the temperament, and the CONDITION of the neighbouring minute parts :——and that the ERUPTIONS, and other CUTANEOUS APPEARANCES, become general, or take place in only this or that part of the body, according to the STATE of the whole CIRCULATING SYSTEM, and the extent of the VASCULAR DEBILITY and IRRITABILITY, which may be supposed partial for the time, and arising from a DIMINUTION of the NERVOUS and MUSCULAR ENERGIES at the part impetiginously affected ; which DIMINISHED ENERGIES, in a greater or lesser degree, have deranged, or entirely destroyed, the CIRCULATION in the EXTREME VESSELS of the ARTERIOUS SYSTEM so affected, most probably by having caused a WEAKNESS in their ACTION, or a PARALYTIC AFFECTION of these CAPILLARY VESSELS.

It is material, that I here introduce the following observations :

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When we are so clearly made eye-witnesses of the steady existence of a brain, and of the regular distribution of nerves to all parts of an animal body, notwithstanding we still remain unacquainted with their specific function, and *modus operandi*, in our machine, I cannot altogether set aside the probable connection, that there must be, between nervous and muscular excitement, and therefore, in the above summary, I have equally supposed the co-operation to take place, in the origin of impetiginous affections.

But though I have done this, I very much think, that the sensorium and nervous system often do no more, than sympathise with the debility and irritability of the system of muscular or moving fibres, and with the lost balance, and impaired connection, between the extremes of the circulating system, to wit, the heart, and the arterious capillary vessels.

Let it be remembered, that a human creature is often born without a brain, but I believe never without a heart: without
the

the latter, and an arterious system, its growth, and anti-parturient existence, could not have taken place. Their importance to the life of the animal ought, therefore, to be considered as præ-eminent, and as most concerned in cutaneous disease.

In what manner the atmospheric air may influence, or in what degree it may promote, the rise and progress of impetiginous diseases, from its connection with the absorbent vessels, independent of its supposed action on the cutaneous extreme arteries, I am not at present prepared to discuss, and I am afraid it will never be possible to establish these nice distinctions. I shall only now take the liberty to say, that, from what I have cursorily observed, I think most of them are in some way aggravated by contact with the air, varying in its effects according to the temperament of the constitution, and the peculiar irritability of the skin.

I very strongly indulge in the hope, that some one part, or other, of the preceding

pathological doctrine, will apply to almost all exanthematous, and impetiginous, affections of the TRUE SKIN, AND ITS EMANATIONS, whether attendant on the inflammatory, or what has been commonly called the cachectic, temperament.

And here let me recommend the candid reader to reflect, that our late illustrious MODERN SYSTEMATIC, whom I have with pleasure so frequently mentioned in the course of this treatise, felt the same impressions on his mind, and made the same observation, when he addressed himself to his hearers, from the PRACTICAL CHAIR of THE UNIVERSITY of EDINBURGH, on the SUMMARY of his febrile doctrines of ATONY, SPASM, and RE-ACTION.

As a general pathology of fever, it labours under the same difficulties, and disadvantages, as the object of this essay, A NEW IMPETIGINOUS DOCTRINE, in as far as it cannot apply but in part to every *species*, or even GENUS of pyrexial disease.

It

It has, nevertheless, been admitted, for some considerable time, in this country, as the best which has been offered, as a guide to the medical practitioner, in febrile disorders. Yet I have always considered it as defective in some part of the theory, though safe on most occasions in practice, when I have minutely compared it to the whole of the principles of the animal œconomy : and, therefore, in the second part of my treatise on sympathy, which I compiled AT THE TIME, when I attentively engaged in studying, with the view of becoming fully acquainted with, DR. CULLEN'S DOCTRINE, I have ventured to offer one, more consonant with my ideas of the anatomy and physiology of the human body, though I knew well, that the firm adherents of the professor would not listen to me AT THAT TIME.

I shall, therefore, think it an honour done my early labours and reflections, in the wide field of medicine, whenever the medical student thinks it worth his while to compare my summary of PYREXIAL DISEASE with DR. CULLEN'S, by referring,
when

when he intends seriously to be informed on the subject, to the paragraphs, CCLVI. and CCCLXIV. of the second part of that treatise, particularly if he has any view to improve our knowledge of this part of medical science, from having himself paid very great attention to the subject.

But, to return to the special object of this section.

Let it be observed, as drawing my pathology of cutaneous diseases to a conclusion, that it ought not, and I think it will not, occasion surprize in the reader, that the impetiginous doctrine, here laid down, has been offered to him so complicated, after he has attentively considered, and well digested, the importance, as well as the number, of the minute parts, entering into the structure of the CUTIS VERA, independent of the EPIDERMIS and RETE MUCOSUM, and their immediate connection with all the functions, as well as the diseases, of the animal system.

FEVER,

FEVER, singly, from there being but little variety in its several genera and species, will admit of a more contracted, and apparently a more connected, doctrine ; for it is one uniform derangement of, or interruption to, the functions of all the VISCERAL ORGANS, as well as a check to the excretions from the capillary vessels of the SKIN and INTESTINAL CANAL ; THE WHOLE OF IT denoted by the altered states of the CIRCULATION and RESPIRATION ;—by THIRST and the LOSS OF APETITE ;—by the condition of the URINE ; and the OBSTIPATED HABIT of the body ;—by the change in TUMOURS and ULCERS on the outer surface of the body ;—and by the diminution of the GENERAL SENSIBILITY, as well as the affections of THE SENSORIUM.

Such PHÆNOMENA are always observable at the regular commencement of a febrile paroxysm, and are deviations from those necessary organic operations, which are constantly going on in a perfect state of health. Still FEVER, from the difference in the remote causes, as well as the difference

ence

ence of the temperaments, is certainly variable in some of its PHŒNOMENA.

On the other hand, the various chronic disorders of the TRUE SKIN, and its EMANATIONS, have their specific and immediate causes locally produced, from an indirect partial operation of the remote causes, and yet are seldom, though they are only local diseases, without being accompanied with more or less of a febrile irritability, even when the temperament, from either the constitution, or the mode of living, is not sanguineous or plethoric.

When all these circumstances are fully taken into the account, and added to the difficulty, which ALL have acknowledged, and experienced, in endeavouring theoretically to investigate, as well as practically to treat, CUTANEOUS DISEASES, I feel prepared to expect, and not to be myself surprized, that my reader should hesitate to enter very readily with me into all the reasoning I have made use of. I fear, that I shall puzzle much oftener than convince him: particularly if he is not prepossessed in fa-

vour of medical doctrines in general : for I well remember how cautiously DR. CULLEN's theory of fever, and all his opinions, used to be received at EDINBURGH, even by the young mind of the curious enquirer, the indefatigable and reflecting student.

Yet I have to hope, that every class of readers, from THE STUDENT to the TEACHER, will be so impressed with the importance, as well as the difficulty, of the subject, as to shew some charity towards this humble and hazardous, though, I flatter myself, not wholly unsuccessful, attempt.

THEIR future consideration of it may clear up many of its obscure, and make perfect many of its deficient, parts, and will then amply repay me for having ventured, thus publicly, to draw their attention to this important class of diseases, and yet HITHERTO INSUFFICIENTLY EXPLORED BRANCH OF MEDICINE.

DERMATO-PATHOLOGIA.

SECTION XXI.

GENERAL OBSERVATIONS ON CULLEN'S CLASS CACHEXIÆ, WITH HIS DEFINITIONS OF SCROPHULA, SYPHILIS, AND ICTERUS, TO SHEW MORE FULLY THE IMPROPRIETY OF HIS NOSOLOGICAL ARRANGEMENT OF THEM; WITH ALSO THE DEFINITIONS OF HIS OTHER IMPETIGINOUS DISEASES.

HAVING, in the first section of this part of the work, *only briefly* endeavoured to make it appear, that SCROPHULA, SYPHILIS, and ICTERUS, are not impetiginous affections, and that they are, therefore, improperly classed in DR. CULLEN'S

SYNOPSIS

SYNOPSIS NOSOLOGICÆ METHODICÆ, I feel it *on that ground* incumbent on me, to conclude with some further observations on those diseases, in a nosological point of view, and with their three several generic characters as cutaneous affections, they having been arranged by the NOSOLOGIST as impetiginous diseases, from a supposed cachectic or cacochymic state of the constitution.

The fourth section of my work has, also, been particularly intended to shew, that *impetiginous affections do not properly belong to the class CACHEXIÆ*, on the principle, that they are in general local diseases, and not always dependent on a cachectic habit, or a cacochymic state of the blood, or circulating fluids.

It would have been better, if I had introduced the definitions of the above diseases before, but I did not, at that time, think, that they were to be considered, as so essentially connected with the subject of a DERMATO-PATHOLOGIA, as I now do. It has been commonly the unavoidable lot of all first editions of works, on general
C c 2 subjects,

subjects, to be, in some respects, incorrectly put together. The reader, I trust, will excuse it.

I shall premise some general observations on this class of disease in CULLEN's synopsis.

If I was to venture a general opinion on the division, and the affections, which form the object, of DR. CULLEN's class CACHEXIÆ, agreeable to the first principle of disease, which I have laid down for myself, as the rule of my own conduct in practice, I should say, that it abounds with inconsistencies, and contradictions.

IT has been characterized, as intended to include all those diseases, which are supposed to depend upon “ a depraved
“ condition of the whole, or greatest part,
“ of the body, without being accompanied
“ with a primary fever, or a nervous af-
“ fection.” Yet it has been admitted by the NOSOLOGIST, that the *pyrexia hectica* characterizes some *species* of disease in this class.

With

With respect to his *habitus depravatus*, I think I have just reason to conclude, from the professor's not having given up the whole of the doctrine of the humoral pathology, but, on the contrary, had continued to be of opinion, that it was the chief foundation of impetiginous diseases, that *that particular expression* refers principally to a supposed diseased state of the fluids of the human body.

MARCORES, the first order of CACHEXIÆ, has been defined to be "a lean-
ness or wasting of the whole body." It has but two GENERA, the TABES and ATROPHIA. The TABES bears a strong relation to the advanced stages of PHTHYSIS PULMONALIS, and SCROPHULA, and seems, by its various *species*, to be in general the *sequela* of those affections. The ATROPHIA seems to be either the convalescent state, after many various disorders, or the extreme degree of a state of inanition.

THEY

THEY therefore appear not, in my opinion, properly distinct GENERA, but are commonly attendant on some local morbid affection, from an impaired state of digestion, or chylication, which are often brought about by the tardy operation of many various causes, and which are also frequently attended with some degree of an impetiginous eruption.

INTUMESCENTIÆ, the second order of CACHEXIÆ, which has been defined to be “ a tumefaction of the whole, or the “ greatest part, of the body, towards the “ outside, (extrorsum,) or outward parts,” includes a very great variety of local affections, connected with some morbid condition of the constitution, from, as I suppose, a depraved state of the motions, or moving powers, of the parts affected.

The greatest number of the diseases of this order do not seem to me to arise from a *habitus fluidorum depravatus*, but, in my opinion, appear to depend upon some specific, and inordinate, organic action at the particular

particular feat of those several affections, which have been supposed to pertain to this nosological order.

POLYSARCIA, PHYSOMETRA, HYDROMETRA, HYDROCELE, PHYSCONIA, &c. are all diseases from a local cause, and, as I am disposed to think, are dependent upon some topical derangement in the system of the capillary vessels.

IMPETIGINES, the third order of CACHEXIÆ, is thus characterized by the nosologist, “A cachectic state, principally disfiguring the skin and outward surface of the body.”

SCROPHULA, the first GENUS of the order, has been defined by DR. CULLEN in the following manner.

“Glandularum conglobatarum, præfertim in collo, tumores; labium superius, et columna nasi tumida; facies florida; cutis levis; tumidum abdomen.”

HIS

HIS description of this disease clearly expresses it as connected with the sanguineous temperament ; it also includes symptoms which have no reference to the condition of the skin, and which are seldom all met with in the same case, or in any other than the above constitution.

It therefore most evidently appears to accompany the irritable vascular, or muscular, habit, and is, strictly speaking, a disease of the lymphatic absorbent system ; and, as described above, by the leading features of a diseased state of the conglobate glands, must readily be admitted as not properly belonging to the order of impetiginous affections.

SYPHILIS, the second GENUS of this order, has been thus delineated.

“ Morbus contagiosus, post concubitum
 “ impurum, et genitalium morbum,
 “ ulcera tonsillarum ; cutis, præfer-
 “ tim ad margines capillitii, papulæ
 “ corymbosæ, in crustas et in ulcera
 “ crustosa

“ crustosa abeuntes ; dolores ostocopi ;
“ exostoses.”

If the opinion which I threw out in the forty-third page, and particularly if those sentiments which MR. J. HUNTER has promulgated, concerning this disease, be well founded, namely, that the *phænomena* of the LUES VENEREA all depend upon the affected parts having been, at the first, only disposed to disease, by the passage of the *syphilitic virus*, after its absorption, through the habit and the circulating system, and that *it* does not remain in the habit, but quits it, leaving the blood of a syphilitic patient uncontaminated, while the external surface of the body is only diseased, then I should feel disposed to give up my objections to its being arranged among the impetiginous diseases, and I should then consider it as a morbid action and affection of the system of capillary vessels, perfectly independent of a *virus*, or cacochymic state of the fluids.

But the remote cause of this disease, being a specific, nervous, and muscular

D d

OPERATION,

OPERATION, connected with a specific, and very virulent, MIASMA, each, SUI GENERIS AB ORIGINE, might be a reason for removing it from an impetiginous classification, independent of its sometimes affecting the deeper seated capillary vessels; for instance, those in the osseous parts,

Nevertheless, when I consider it, as occurring at all ages, and in all constitutions, with the appearance of being strictly a local, and not a cachectic or cacochymic disease, but depending on an unknown principle, connected with the moving powers of the capillary system, I am myself much disposed to agree with MR. HUNTER, in his pathological opinion of the *lues venerea*; and which, I imagine, puts on its various forms according to the idiosyncrasy of the constitution, and the irritability of the capillary vessels,

Having only become acquainted with MR. HUNTER's particular opinion on this subject, since I printed the first section of this work, in which I then said, that a peculiar idiosyncrasy was concerned in occasioning

caſioning the variegated appearance of the diſeaſe, but, at which time, I only ſuſpected, that the blood might not be contaminated, it has become the more neceſſary that I ſhould make the preceding obſervations, in ſupport of that idioſyncracy.

To arrange ICTERUS, above all things, in an order of impetiginous affections, depending, as ſuppoſed, on a cacochymic habit, ſeems to me very extraordinary. This diſeaſe, which has been ranked laſt in the liſt of the GENERA of this order of CACHEXIÆ, as if it bore an ambiguous complexion, may be ſaid never to occur, (if it is always to be looked on as a bilious diſeaſe, which, from the definition of it, it muſt be,) but from ſome morbid affection, or action of the liver, or diſturbed condition of the biliary ducts, and it therefore merits, and ſhould be diſtinguiſhed by, a more proper generic character, marking the true ſeat and cauſe of the diſeaſe.

As it is now deſcribed in our improved noſology, it is characterized by external

symptoms only : all confined to its single and simple effects upon the natural fluids and the excretions, viz. in this way,

ICTERUS. “ Flavedo cutis et oculo-
 “ rum ; fæces albidæ ; urina obscure
 “ rubra, immixta colore luteo tingens.”

In this generic definition, the real cause and seat of that disease, commonly known by the name of jaundice, are unnoticed by DR. CULLEN ; and it has not even been strictly characterized as an impetiginous affection. It might, with the same propriety have been considered as a disease of the kidneys, or of the intestinal canal, because their excretions are so very much affected, though each on a very opposite principle.

A FLAVEDO CUTIS has often been mistaken for the ICTERUS, or bilious affection of the liver, when it has had no connection whatever with that organ : and the medical treatment, from this mistake, has sometimes been of an injurious tendency to the health of the innocent infant, as well as the ignorant domestic practitioner, who has
 been

been led to believe, that a yellow, or fallow, skin must always be a jaundice: and they have not always been set right, by those, who ought to have been better informed.

It is plain, that DR. CULLEN has considered ICTERUS as a generic disease of the skin, and not as symptomatic of an internal affection of the liver. He has, therefore, been driven to the necessity of calling his various *species* of the disease itself *idiopathic*. It would have been just as correct, if he had characterized his order, FEBRES, by thirst, obstipation, scanty urine, and a dry skin, and have given his several genera of fever, properly noticing the internal affections of the system, as only *idiopathic species*.

Having commenced my second section, with observing, that the SCURVY is very strictly an affection of the skin; and having then endeavoured to shew, that it is primarily a disease of the solids, and only, secondarily, a disease of the fluids, and that
it

it is occasioned by the remote causes acting with a debilitating effect, either on the system at large, or on the stomach, and intestinal tube, affecting thereby the established connection between the internal and external systems of capillary vessels, I shall now give my reader DR. CULLEN's generic character of that disease, as very fairly founded on the several circumstances connected with the principle of the new pathology, from its including the remote and occasional causes, &c.

SCORBUTUS. “ In regione frigida
 “ post victum putrescentem, salitum,
 “ ex animalibus confectum, deficiente
 “ simul materia vegetabili recente;
 “ asthenia; stomacace; in cute maculæ
 “ diversicolores, plerumque livescen-
 “ tes, præsertim ad pilorum radices.”

This disease arises, in my opinion, from one universal proximate cause in the system, to wit, an atony of the arterious capillary vessels. DR. CULLEN, agreeable to this supposition, has not noticed any particular species

species of it, but has only observed, “ that
“ it varies in its degree, and also in its
“ symptoms.”

As concluding all I have at present to observe on the subject of impetiginous pathology, I shall lay before my reader the several definitions of the other GENERA of disease in CULLEN's order of IMPETIGINES, to wit, ELEPHANTIASIS, LEPRO, FRAMBESIA, and TRICHOMA, because I have before observed of them, that they are, strictly speaking, impetiginous affections, and, though not arising certainly from a cacochymic state of the fluids, yet have been considered by DR. CULLEN as depending on the cachectic habit.

ELEPHANTIASIS. “ Morbus contagiosus ; cutis crassa, rugosa, aspera,
“ unctuosa, pilis destituta ; in extremis artubus anaesthesia ; facies tuberibus deformis, vox rauca et nasalis.”

LEPRO.

LEPRA. “ Cutis escharis albis, fur-
 “ furaceis, rimosis, aspera, aliquando
 “ subtus humida, pruriginosa.”

FRAMBOESIA. “ Fungi, mori, vel
 “ rubi idaei fructus referentes, in va-
 “ riis cutis partibus enati.”

TRICHOMA. “ Morbus contagiosus,
 “ capilli solito crassiores, in cirrhos et
 “ funiculos inextricabiles implicati.”

All these GENERA are properly character-
 ized as cutaneous affections; but if the
 ELEPHANTIASIS and TRICHOMA are con-
 tagious diseases, on any other principle than
 simply external contact, it might be made
 a question, whether they can be so properly
 considered as impetiginous diseases. Pro-
 bably, in the countries, where they are
 most prevalent, they are constantly atten-
 ded with more or less of a general affec-
 tion of the system.*

So great

* It has always surprized me much, that DR. CULLEN
 should have introduced the following note in his synop-
 sis. “ De elephantiasi, lepra, framboesia, et trichomate,
 utpote

So great is the present imperfect state of nosological systems, that impetiginous diseases have not yet been brought together, in one point of view, and on one principle of arrangement: accordingly, DR. CULLEN has given us in his class, **LOCALES**, an order, **DIALYSES**, which he thus defines; “*Solutio continui visu tactu manifestæ,*” and in this order, with the **VULNUS**, **ULCUS**, **FRACTURA**, and **CARIES**, he has introduced the **HERPES**, **TINEA**, and **PSORA**.

HERPES. “*Phlyctænæ vel ulcuscula*
 “*plurima, gregalia, serpentina, dyse-*
 “*puleta.*”

TINEA. “*In cute capillata ad radices*
 “*capillorum, ulcuscula humorem in*
 “*crustam albam friabilem abeuntem,*
 “*fundentia.*”

E e

PSORA.

“*utpote morbis a meipso nunquam visis, amplius sta-*
 “*tuere non ausus sum.*” I think, if I understand his definitions of the above four diseases right, I may have seen all of them, except the last;—two of them, viz. the elephantiasis and lepra, repeatedly, though not with every symptom mentioned in their definitions.

PSORA. “Pustulæ et ulcuscula pruriginosa, contagiosa, manus male habens.”

By arranging these cutaneous affections in a class characterized, “Partis, non totius corporis, affectio,” DR. CULLEN falls in with the propriety of my proposition, that impetiginous diseases in general are local affections. If he ever was himself of opinion, that there is an essential difference, between a leprous and an herpetic disease, I acknowledge myself unacquainted with his ground of distinction; and have to lament, that he did not think, as a teacher of the medical science, that the objects of his class, CACHEXIÆ, merited as much of his attention, as his FEBRES, PHLEGMASIÆ, EXANTHEMATA, HÆMORRHAGIÆ, and PROFLUVIA, in his much favoured class PYREXIÆ. If he had so acted, he would have shewn his attachment to the science at large, and to the good of mankind, to have been equal to his attachment to HIS OWN DOCTRINES.

CON-

CONCLUSION.

I am conscientiously impelled to sum up the subject, with addressing a few words to those, even of a liberal education, though not of the profession, (if the present attempt should ever attract the notice of such persons,) who are of opinion, from the influence of the several publications tending to that object, that EVERY ONE MAY BE HIS OWN PHYSICIAN, and who fearlessly venture on the use of publicly advertized medicines for the cure of that numerous description of disease, the eruptive and other morbid appearances of the human skin, many of which are too powerful for some constitutions to receive with impunity.

With the view of cautioning such, I could have recommended the present work to the attention of the public, not because

it is written to guide them to the medical treatment of themselves in such cases, but to shew to them, that the subject is too difficult and complicated for them, with prudence, to trust to their own imperfect knowledge and judgement of their complaint, or to the specious addresses every day met with, to induce them to make use of the many public remedies, either internally to be taken, or externally to be applied, for the cure of scorbutic, leprous, and other eruptive diseases of the skin.

Notwithstanding the mischief to be apprehended from this custom, I, at the same time, feel confident, that such directions may in time be laid down, by skillful attention to these disorders, as will enable the practitioner to point out those particular *species* of cutaneous complaints, which may with perfect safety be externally treated, by remedies, even perhaps of that kind, which are offered to the public, as secrets known only to the proprietors, while others do not admit of such, but are soonest removed on constitutional principles.

Medicine has often been indebted to the bold and secret practitioner for the discovery of very useful preparations. We may instance JAMES'S fever powder, which has now met with the sanction of the ROYAL COLLEGE OF PHYSICIANS, and introduced into their late pharmacopœia, though it is still too often indiscreetly made use of by the domestic practitioner. In like manner may some very good external remedies be discovered for some of the local diseases of the human skin.

But what is at present most wanted, is a rule to determine, when such can be safely made use of to remove these local complaints without injury to the constitution; and with the view of becoming more useful in this way, and of establishing such diagnostics to direct the application of them, I propose giving my attention in future to the subject.

APPENDIX

APPENDIX

TO THE

DERMATO-PATHOLOGIA,

ON THE

SOURCE OF ANIMAL HEAT,

BY THE

CAPILLARY VESSELS,

ON THE

OUTWARD SURFACE OF THE BODY;

AND

ON THE CONNECTION OF

THIS VASCULAR FUNCTION,

WITH

CUTANEOUS DISEASES:

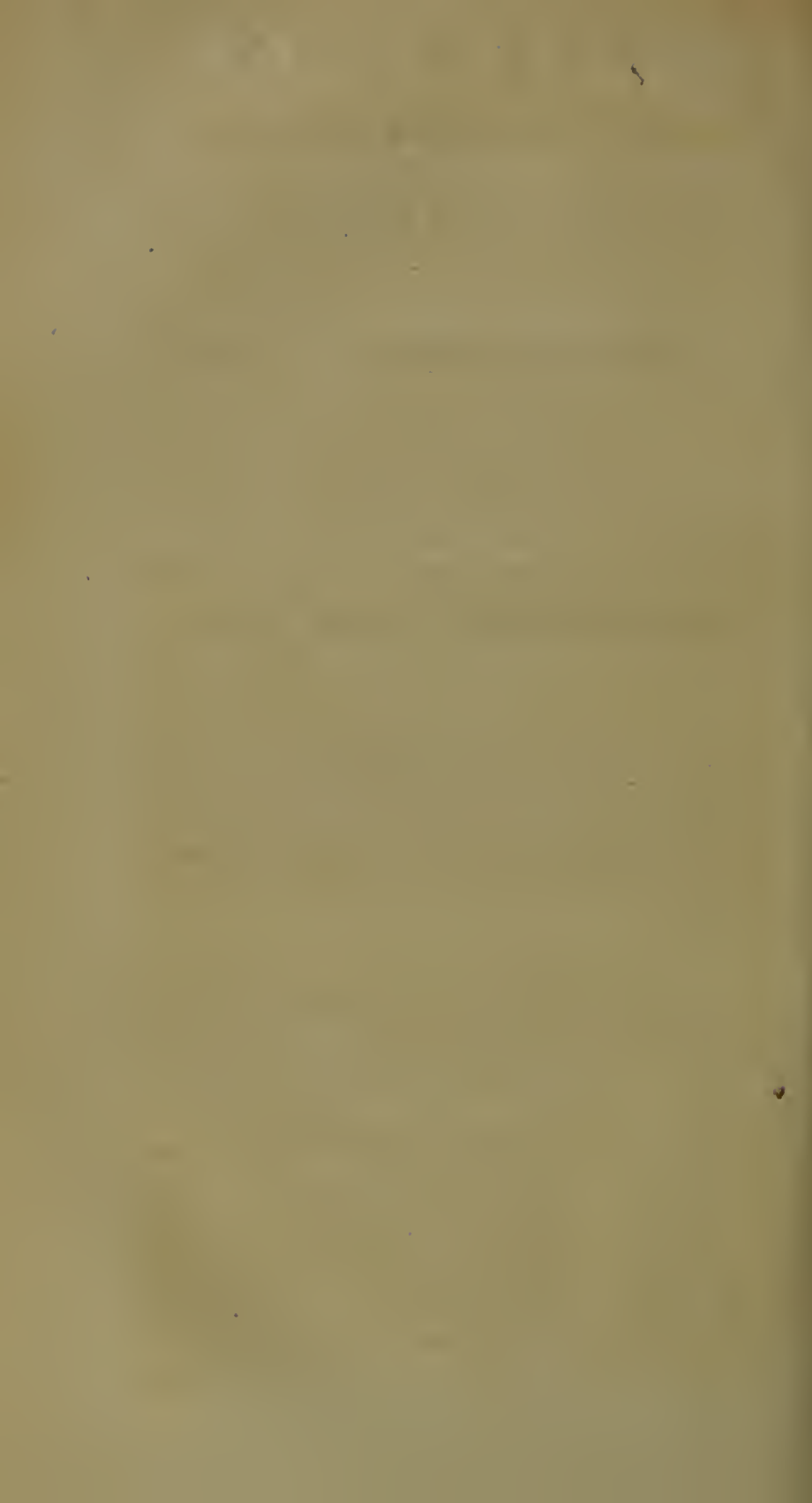
WITH, ALSO,

SOME PARTICULAR OBSERVATIONS

ON THE

RECENT THEORIES OF SCURVY,

&c. &c.



A P P E N D I X, &c.

SECTION I.

SOME OF THE PRINCIPAL FACTS AND OBSERVATIONS CONCERNING ANIMAL RESPIRATION, AS THE SOURCE OF ANIMAL HEAT, WITH THE VIEW TO POINT OUT AND EXPLAIN, IN THE FOLLOWING SECTION, A PROBABLE CONNECTION BETWEEN IMPETIGINOUS DISEASES, AND THE CUTANEOUS EXHALENTS AND ABSORBENTS, AS EQUALLY THE REGULATORS AND CONDUCTORS OF ANIMAL HEAT.

AS some apology for what I am proceeding to lay before my reader, I shall beg leave to commence with the following words from an inaugural dissertation:
“ *Mens humana profundis naturæ rerum-*
F f “ *que*

“ que causis in eruendis negotio continuo
 “ occupatur, atque argumenta hujus sui
 “ studii ad usum, tum placita opinione,
 “ cum factis administrantibus, conatu op-
 “ timo captat colligitque.*” This will
 very sufficiently apply to my humble
 endeavours to clear up and arrange the
 obscurity and confusion among cutaneous
 diseases, which are not yet either satis-
 factorily understood, or properly divided.

On an attentive review of the whole of
 the observations on the preceding sections,
 as constituting an attempt to establish a
 new system of impetiginous theory, with
 a view to a more safe and ready practice in
 this most perplexing branch of the healing
 art, I have suffered my mind to be led on,
 till I have been brought to think, that I
 shall be able to throw some further light
 on this very interesting and extensive sub-
 ject, by endeavouring to illustrate more
 fully, that part of the capillary system in
 the conduct of the animal œconomy, which
 I have so slightly touched upon before, to
 wit, the absorbing vessels.

From

From further reflection, and some additional reasoning, I have so far extended those early ideas, which supposed, that there was a probable influence of the atmospheric air on the skin, as may further corroborate the general principle of my system; namely, that either a diseased or impeded action of the motions, or moving powers of the whole of the capillary vessels, forms the immediate or proximate cause of that apparently diseased state of the cutaneous effusions and secretions, which may be said to constitute the proper impetiginous disorder.

I will readily admit, from the subject having so much interested me, that my mind may have been too often inclined to indulge some opinions, before I had met with facts sufficient to justify the mentioning of them. This was my mental situation, when I before* hinted at the probability of the atmospheric air being concerned in the rite and progress of impetiginous affections; but I then added,

F f 2

“ that

* In a passage at page 187.

“ that I was not *at that time* prepared
“ to discuss it.”

Even at an earlier period of my work, namely, in the section on the anatomy of the cutis vera, and its emanations, I have laid but little stress on the possibility of the absorbing vessels of the skin being concerned in the production of impetiginous eruptions, though they have a very considerable share in the structure and organization of the true skin; and, from the experiments and observations on them, by our present leading anatomical men, may be as liable to, and as concerned with, every state of impetiginous disease, equally with every other kind of capillary vessel: for they have been supposed endowed both with sensibility and irritability, and even furnished with muscular fibre. But it should here be mentioned, that it is not an essential character of muscular fibre to be red.

I have, therefore, since the above periods of the work, endeavoured to reconcile myself to an idea, and shall attempt to
gain

gain my reader over to be of the same opinion, that the absorbing vessels on the outward surface of the body have a function to perform in the animal œconomy, which I believe has not been hinted at before in any writings, on the subject with which it is immediately connected, to wit, the generation of animal heat ; at least, I am certain, that in that very interesting publication, by the ingenious and learned DR. CRAWFORD, which he has entitled “ experiments and observations “ on animal heat, and on the inflammation “ of combustible bodies,” it has not been taken notice of.

This has inclined me to think it worth my while to observe, and my reader to know and consider, that a new system of reflections, tending to this point, may lead to a further discovery of facts and observations, and to a physiological chain of reasoning, which will justify the probability of the idea I have taken up, that these vessels have a concern in the immediate rise of cutaneous eruptions and inflammations, in as far as they may be
hereafter

hereafter proved, or admitted, to be the regulators and conductors of animal heat, in the support of the animal machine, by some process generating and absorbing it from the atmospheric air.

This naturally leads me to consider the principles on which DR. CRAWFORD has established his doctrine of animal heat, as connected with, and brought about by, the process of animal respiration. I shall, therefore, enumerate, in as brief a way as possible, some of the facts and observations which support his ingenious theory, and shall afterwards, to wit, in the following section, make the proper application of it to the particular object of this work.

I shall, therefore, proceed with premising, from among his general facts, some explanation of terms connected with the science of chemistry.

It has been observed,

1. That absolute heat is to be considered as the element of fire.

2. That

2. That heat is either a sensation of the mind, or the principle exciting that sensation, whether it be considered as a quality, or as a substance.
3. That this principle, or element of fire, is in common language called *sensible* heat, but in philosophical language, *absolute* heat.
4. That *absolute* heat is the *power* or *element* which excites in all animals the *sensation* of heat; and that *sensible* heat expresses the same, as *relative* to the *effects* it produces.
5. That the capacity to contain heat is a power inherent in the heated body; that *absolute* heat is an unknown principle retained by that power in the body; and that *sensible* heat is that same unknown principle producing certain effects on our senses, and on the thermometer,

To proceed to the facts in support of
DR. CRAWFORD'S doctrine.

1. Heat is contained in great quantities in all bodies, when at the common temperature of the atmosphere.

2. Heat

2. Heat has the property of having a constant tendency to diffuse itself over all bodies, till they are brought to the same degree of sensible heat.—This, it is evident, can only be meant to apply to inanimate matter; for it is afterwards said, that the animal body is constantly communicating heat to the surrounding medium, and that it must of course have the power of generating heat.
3. By a set of experiments it is then proved, that blood contains a greater quantity of absolute heat than water, or the several principles of which it is composed, to wit, flesh, milk, and vegetables.

In the next place it has been observed, in support of the superior heat of the blood,

1. That the respiratory animal keeps at a temperature higher than the surrounding atmosphere: but animals without respiratory organs are very nearly of the same temperature with the medium in which they live.
2. That among the hot animals, those are the warmest, which have the largest

largest perspiratory organs, and which consequently breath the greatest quantity of air in proportion to their bulk. Birds have, therefore, the greatest degree of animal heat. 3. That, in the same animal, the degree of heat is, in some measure, proportionable to the quantity of air inspired in a given time. Animal heat is, therefore, increased by exercise, and by whatever accelerates respiration.

On these grounds DR. CRAWFORD next proceeds to defend the three following propositions :

First,—That atmospherical air contains a greater quantity of absolute heat than the air which is expired from the lungs of animals.

In defending this axiom, he has asserted,

That the air, expired from the lungs, occasions a precipitation in lime water ; a part of it, therefore, consists of fixed

G g

air.

air.* The residuum has been found by DR. PRIESTLEY to be a mixture of atmospheric, and what he has called phlogisticated, air; a species of air, he says, which occasions no precipitation in lime water, but which extinguishes flame, and is noxious to animal life.

In pursuing the subject, DR. CRAWFORD further observes,

That air is altered in its properties by phlogistic processes.—It is diminished in its bulk.—It is rendered incapable of maintaining flame, and of supporting animal life;—and, if a few instances are excepted, where the fixed air is absorbed, it universally occasions a precipitation in lime water.

DR. CRAWFORD, therefore, concludes, that there is no phlogistic process in nature, which is not accompanied with the
production

* As necessary to my purpose hereafter, it should be in this place mentioned, that the same, I believe, has been proved by experiment to be the effect of the insensible perspiration, from the same cause.

production of fixed air. It, is therefore, made to appear, that, by the process of respiration, atmospherical air is converted into fixed and phlogisticated air.

A set of experiments then follow to determine the heat of these different species of air; and they prove, with certainty, that the absolute heat of atmospherical air is greater than that of fixed or phlogisticated air.

Further experiments also prove, that dephlogisticated air is of the purest kind; and it had been before proved by the experiments of DR. PRIESTLEY, that its power in supporting animal life is five times as great as that of atmospherical air.

After the various experiments to determine the different proportions of heat in the different kinds of air, in support of his first proposition DR. CRAWFORD observes, thus, “ We have therefore, upon the whole, “ sufficient evidence for concluding, that “ atmospherical air contains a greater “ quantity of absolute heat than the air

“ which is expired from the lungs of ani-
“ mals ; and that the quantity of absolute
“ heat contained in any kind of air, that
“ is fit for respiration, is very nearly in
“ proportion to its purity, or to its power
“ in supporting animal life.”

DR. CRAWFORD's second proposition is,
—“ That the blood which passes from
“ the *extreme surface of the* lungs to the
“ heart, by the pulmonary *veins*, contains
“ more absolute heat than that which
“ passes from the heart, through the
“ lungs, *to the said surface*, by the pul-
“ monary artery.” That is to say, that
the venous blood of the system of pulmo-
nary arteries has less heat, than the arterial
blood of the system of pulmonary veins.

He proceeds to determine this propo-
sition by a set of experiments ; and then
offers his third proposition, which is,
“ That the capacities of bodies, for con-
“ taining heat, are diminished by the ad-
“ dition of phlogiston, and increased by
“ the separation of this principle.”

This

This last he also proves by experiments, first observing, that, “As bodies
“when inflamed, appear to emit light,
“and give out heat, from an internal
“source; and, as those bodies are
“only combustible, which contain the
“phlogiston in considerable quantity, it
“has been an opinion generally received
“among philosophers, that this principle
“is either fire itself, or intimately connected with the production of fire.” He then goes on to say, “If this, however,
“were true, bodies, when united with
“phlogiston, would contain a greater
“quantity of fire, or of absolute heat,
“than when separated from it. Metals
“would contain more absolute heat than
“their calces; and sulphur, more than
“the vitriolic acid. But the contrary is
“the fact, as stated in the above proposition, appears from the following experiments.”

After these said experiments, DR. CRAWFORD makes the following observation,
“That if phlogiston be added to a body, a
“quantity of the absolute heat of that body
“will

“ will be extricated ; and if the phlogiston
 “ be separated again, an equal quantity of
 “ heat will be absorbed.” And, after some
 examples, thus concludes, “ Heat, there-
 “ fore, and phlogiston appear to me to be
 “ two opposite principles in nature. By
 “ the action of heat upon bodies, the force
 “ of their attraction to phlogiston is dimi-
 “ nished ; and, by the action of phlogiston,
 “ a part of the absolute heat, which ex-
 “ ists in all bodies as an elementary prin-
 “ ciple, is expelled.”

Upon these facts, established by his nu-
 merous experiments, DR. CRAWFORD pro-
 ceeds in his third section, to an explanation
 of animal heat, and the inflammation of
 combustible bodies.

In his application of the above principles
 to animal heat, he says, “ That in the
 “ process of respiration a quantity of ab-
 “ solute heat is separated from the air,
 “ and absorbed by the blood,” which he
 has considered as made manifest and un-
 controvertible, both by his own experi-
 ments, as well as by DR. PRIESTLEY’S disco-
 veries ;

veries; and DR. CRAWFORD therefore concludes, “ that the power of any species
“ of air, in supporting animal life, is nearly
“ in proportion to the quantity of absolute
“ heat which it contains, and is consequently proportionable to the quantity
“ which it is capable of depositing in the
“ lungs.”

This conclusion meets with full support from DR. PRIESTLEY’S demonstrations, who has shewn, that, by the function of respiration, phlogiston is separated from the blood, and combined with the air;—and that, during this process, a quantity of absolute heat must necessarily be disengaged from the air, by the action of the phlogiston: the blood at the moment being left at liberty to unite with that portion of heat, which the air has deposited.

I shall here beg leave to observe, that, in the language and meaning of these philosophers, the sympathy, or chemical attraction, is supposed to take place between the fluids circulating in the capillary vessels, and the atmospheric air; and
they

they have therefore viewed animal heat as depending on a process similar to a chemical elective attraction. But I cannot divest my mind of an idea, that in the application of this pneumatic chemistry to the œconomy and living principle of an animal, the vital solids, as endowed with great irritability, are much concerned in the operation, and that the sero-lymphatic part of the blood may equally afford the phlogiston, as the blood itself. But more of this hereafter.

On the whole, it appears from DR. CRAWFORD's experiments, that, in respiration, the blood is continually discharging phlogiston, and absorbing heat, and that in the course of the circulation, it is continually imbibing phlogiston, and emitting heat. It is further this ingenious writer's opinion, that the sensible heat, which is produced by the circulation of the blood, is occasioned by the whole not being absorbed, which is separated from it, on its acquiring the phlogiston from the different parts of the system.

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From all this reasoning DR. CRAWFORD concludes, “ that the blood, in its progress through the system, gives out the heat, which it had received from the air in the lungs; that a small portion of this heat is absorbed by those particles which impart the phlogiston to the blood; and that the rest becomes redundant, or is converted into moving or sensible heat.”

It here becomes essentially necessary, that I should make the following observation, as it concerns my own particular application of the above doctrine to cutaneous heat and inflammation, and to impetiginous eruption. All these phænomena have been *wholly* attributed by DR. CRAWFORD to the absolute heat, which is separated from the air, by the function of respiration *solely*: and this process he has considered as the *only* and *true* cause of the generation of heat in the animal œconomy; and as the grand source of that *pabulum vitæ*, so essential to the preservation of the animal kingdom. But I shall shortly en-

deavour to make it appear probable, that there must be another source of heat, of equal, if not greater, importance, in the constitution, and in the same manner connected with both the health and diseases of man.

Among the principal facts relating to animal heat in DR. CRAWFORD'S fourth section, as further supporting his doctrine, he has observed the following :

1. That the animal kingdom has been furnished with a pulmonary system, and a double circulation, with the particular view of absorbing heat.
2. That the principle of phlogiston serves to separate absolute heat from the air, both in respiration as well as combustion.
3. That man and a candle phlogistificate *nearly* the same quantity of air, in the same space of time; and hence that he is continually receiving as much heat from the air as is produced by the burning of a candle.

4. That

4. That in the cold animals, not furnished with lungs, who still keep themselves in a temperature somewhat higher than the surrounding medium, it is probable that the aliment contains more absolute heat than the blood, and that, therefore, their blood will be supplied with heat from the aliment.
5. That the animal body has in certain situations the power of producing cold; (that is, in my opinion, the power of regulating the heat;) and that this power has been attributed by some philosophers to the evaporation on the surface of the body. But DR. CRAWFORD has chiefly attributed it to the increase of evaporation from the surface of the lungs, from the heat of the surrounding medium; and says, “That the same process, which
“ formerly supplied the animal with
“ heat, will now become the instru-
“ ment of producing cold.” On this principle DR. CRAWFORD perceives the reason, why the heat of animals is nearly the same in all parts of the earth.

I am of opinion, that I shall be hereafter able to make it appear probable, that the process of cutaneous perspiration is equally concerned in the distribution, as well as the regulation, of the animal heat, under the vicissitudes in the temperature of the surrounding medium.

6. That the heat of the human body is very nearly, at all seasons of the year, 96, and, consequently, other circumstances continuing the same, the quantity of heat lost in a given time, when the air is at 36, will greatly exceed that which is lost, in an equal portion of time, when it is 66. It, therefore, appears necessary, that a greater quantity of heat should be absorbed from the air to supply its place. This DR. CRAWFORD has endeavoured to account for, by observing, that, from the tonic and stimulant effects of atmospheric cold, the vigour of the body is increased, and that the blood is determined to the lungs, by a constriction of vessels on the outward surface

surface of the body. This fact, I think, may be otherwise explained.

7. That as animals are continually absorbing heat from the air, if there was not a quantity of heat carried off, equal to that which is absorbed, there would be an accumulation of it in the animal body. This has been supposed to be prevented by the evaporation from the surface of the lungs, and the cooling power of the air, conjointly, between which a proper balance is preserved, evident by the alternating changes in them, according to the seasons of the year.
8. That bodily exercise, or the increased action of the moving or muscular system, by promoting the circulation of the blood, and accelerating the process of respiration, occasions a proportionable increase in the quantity of phlogiston discharged, and in the quantity of heat absorbed.
9. That the phænomena of the cold stage of fever are owing to the spasm formed upon the surface, and to the diminution of the quantity of blood passing
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ing ordinarily through the lungs. Then DR. CRAWFORD goes on to observe, that the absorption of heat, and the accelerated velocity of the blood through the lungs will afterwards act and re-act upon each other, in such a manner, as that the heat will have a constant tendency to increase, but that in the hot stage of fever there is a great evaporation from the surface; and he therefore concludes, that this is one of the means, which nature employs, for moderating the heat, and restraining the violence of the disease.

10. That it is to the greater quantity of phlogiston thrown off by the lungs in putrid fevers, from the general putrescent state of the system, that the heat of the body rises higher in them than it does in any other species of fever. I think a different explanation might be given of this.
11. That the partial and unusual heat, accompanying topical redness and inflammation of the cutis vera, is occasioned by the accelerated velocity of the blood through the part inflamed, and

and that a tendency to putrefaction must be the consequence of this violent re-action, and of the stagnation of the ferous matter, which is sometimes effused into the adjoining cellular texture.

Lastly, That the partial heats, attending the hectic and nervous diseases, are also to be explained on the principle of a loss of balance in the equal distribution of heat, by an increased or *inordinate* action of the vessels, in the parts so affected.

So many of the preceding experiments and observations tend, in my humble opinion, to prove the universality of some, perhaps yet undiscovered, principle, generating heat in the human body, that I cannot but entertain an idea, in the present early state of this enquiry, that its source may be as much (I must not, I fear, say more) connected with the cutaneous functions, insensible perspiration and capillary absorption, as it is with the pulmonary function, respiration: for from the knowledge

ledge I have of the anatomy of both organs, I cannot see that the air can come into contact with the blood itself, more on the one surface than on the other.

I am therefore led to think, that the air's *modus agendi* on the blood has not yet been rightly understood and explained; and in this view of the subject, I think there is sufficient latitude to allow me to consider each component part of the blood as indubitably containing the principle of phlogiston, acquired from one general cause, and parting with it, under certain circumstances, to receive heat, equally with the whole aggregate fluid in its florid state, under the full denomination of red blood. Particular circumstances may be hereafter mentioned, which will support this opinion.

The curious enquirer must be referred to the work at large for the many ingenious arguments made use of by the learned author, in support of the whole of his own doctrine, which he has drawn to a conclusion with the following observation :

“ I have

“ I have thus endeavoured (says DR.
“ CRAWFORD) to account for the phæ-
“ nomena both of combustion and animal
“ heat from one general principle ; to wit,
“ that the capacities of bodies for contain-
“ ing heat are diminished by the addition
“ of phlogiston, and increased by its sepa-
“ ration.” And on this principle, he says,
that a variety of phænomena may be ex-
plained, besides those which he has men-
tioned in the preceding part of the work.

In enumerating these, as connected with
natural philosophy, as well as the animal
œconomy, he has related one, which I
must particularly take notice of, as appear-
ing to me to be very pointedly applicable
to my supposed cutaneous generation of
animal heat. DR. CRAWFORD has observed,
that the ingenious MR. BEWLY has ven-
tured to explain the spontaneous accension
of phosphorus in the following manner :
MR. BEWLY is, first, of opinion with DR.
PRIESTLEY, that the atmospherical air
contains the nitrous acid, as a constituent
principle ; and then, from observing that
much heat arises from the sudden combi-

nation of phlogiston with this acid, he concludes, that the phlogiston of the phosphorus is capable of decomposing the air; and that, by the union of phlogiston with the aerial acid, a degree of heat is produced sufficient to inflame the phosphorus.

Will not this philosophical observation, joined with the leading features of DR. CRAWFORD'S doctrine, justify me in advancing the opinion, that the heat of an animal body partly, if not principally, depends upon an absorption of absolute heat from the air, by the absorbing principle on the outward surface of the body, on the following kind of chemical attraction, or mode of action?

Or, in other words, have I not very good grounds for alledging, from the above fact and doctrine, that the generation of animal heat may as much depend upon the function of perspiration, as on that of respiration, in the following way; to wit, that the exhalent or perspirable extreme vessels may first convey and carry off, by their function as promoting the insensible perspiration,

perspiration, a certain quantity of the phlogiston or inflammable principle acquired by the arterious blood in the course of its circulation, which, in the form of the perspirable vapour, unites to the nitrous acid, already deemed a constituent principle in the atmospherical air, and that the union instantaneously occasions a separation of the absolute heat in the surrounding medium immediately in contact with the outward surface of the body; and that then the absorbing vessels of the true skin have an inherent principle of action in them to take up a part of it, for the necessary support and preservation of all the functions of the animal system, leaving the rest to be dissipated in the atmosphere in the form of sensible heat.

I feel my own mind strongly impressed with the force of this reasoning, and with the justness of the application of DR. CRAWFORD'S pulmonary principle generating animal heat to explain the external heat of the human body: and when I further consider the manner in which DR. CRAWFORD explains the phænomena of a

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burning

burning candle, I cannot but be more firmly convinced, from the force of the analogy, that there is such a cutaneous operation.

I shall make a few observations in support of this pneumatic theory, by applying it to some human occurrences, diurnally calling upon our attention.

Will not the supposition of a cutaneous chemical attraction account for the effects of friction in exciting a local increase of heat, on the same principle that the blast of air, or the blow pipe, augments the process of combustion; for, by its stimulating effects, it must promote the quicker action of all the capillary vessels, and must thereby forward both the escape of phlogiston, as well as the admission of a part of the atmospheric fire, or even any other fluid, or suitable particles, into the animal constitution, according to the means made use of to rouse the function of the absorbents?

In like manner should I be disposed to account for the fact, as it has appeared to me, that the surrounding medium, immediately in contact with the surface of an animal body, is warmer, than it is observed to be, by the thermometer, at a small distance from it : that is to say, that it contains more sensible heat : for it may be explained by supposing, that a certain, perhaps a considerable, portion of the absolute heat, (varying however according to occasional and exciting circumstances,) which has been separated from the atmospheric air by the human phlogiston, is not absorbed, but becomes sensible heat, in the same manner that the heat of the common atmosphere, in contact with a burning candle, is so much increased ; and that the redundant fire from each process is quickly dissipated into the surrounding atmosphere, on the same principle.

I believe it will be always found, on minute observation, that a person feels warmest, when he is lightly clad with loose apparel, either covering his body or his limbs. Why is it so ? Will not the above reasoning

reasoning explain it? Is it not because such cloathing does not prevent that particular warmer portion of the surrounding atmosphere, produced on the above principle, from constantly hovering around him, but favours its being more gradually dissipated? When he is closely and heavily clad, he may perspire freely, but he will, on many occasions, feel himself in proportion more chilly, both as the effect of the damp linen adhering to his body, and preventing such a medium of warmer air forming immediately in contact with the cutaneous surface, as well as from the quicker aerial attraction absorbing the heat separated by his phlogiston, from the increased humidity of the air caused by his perspiration, on the principle of evaporation diminishing the sensible heat of the atmosphere, in contact with a damp body, on all occasions.

The same pneumatic principle or process, through the medium of a cutaneous vascular action, will also explain the local cause of the flushing and burning of the face and hands, so often occurring as the
partial

partial phænomena both of health and disease. During these sensations an increased action of, perhaps, all the capillary vessels of the part takes place. The human phlogiston may be therefore supposed to be more freely separated, or thrown off, by the exhalent arteries of the skin, than in common, on DR. CRAWFORD'S principle of explaining the heat of a topical inflammation, saving that it is not necessary to suppose, on these sudden local effects, that the tendency to putrefaction is thereby increased.

The consequence of this temporary increase in the insensible exhalation from the perspirable arteries is, that a greater degree of sensible heat is immediately felt in the air in contact with the part flushed, from the attraction of the human phlogiston to the nitrous principle of the atmosphere, it being greater in quantity at that time, than under the ordinary circumstances of insensible perspiration, and therefore more heat is suddenly observable, both by our senses, and the thermometer. I believe experiments have not been yet made with
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a particular view to an explanation of these phænomena.

I shall draw these observations to a conclusion with again noticing, that DR. CRAWFORD has confined his doctrine of animal heat to a supposed chemical process in the lungs, supported by the alternate actions of inspiration and expiration, except in admitting that the same will locally explain, from its after-connection with the circulation, the effects of external inflammation, from the increased action of the vessels of the part locally affected. His application of it to these casual capillary phænomena appears to me, to be much in support of my opinion, that the whole surface of the human body may, at all times, be equally endowed with the power of generating heat : and many of his pneumatic phænomena prove, that the function of perspiration, in many instances, regulates its ordinary quantity, as well as controuls its occasional redundancy.

DR. CRAWFORD has wound up the subject by shewing his inclination to support
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the opinion, with, I think, just argument, that heat is a substance and not a quality : ——— That it is an element *sui generis* : ——— That respiration and combustion are chemical processes, in which, by the exchange of fire and phlogiston, a double decomposition takes place : ——— That the blood parts with phlogiston and receives fire ; and that the air parts with fire and receives phlogiston.

Let me add, as an opinion I have taken up from the weight of the above *data*, that the insensible perspiration of an animal body forms a chemical process, operating with the atmospheric air, to the same intent, and on the same principle, under the government of the system of cutaneous capillary, exhaling and absorbing, vessels.

It is incumbent on me to inform my reader, that I have chosen, for my present purpose, to select the above facts and observations from the first edition of DR. CRAWFORD'S work, for several reasons which had weight with me. My having

done so does not affect the application I have made of the tendency of the doctrine, to throw some light on cutaneous diseases, as the learned author has not altered his opinion in his late much extended edition, but has only more fully supported it, by additional and more accurate experiments and observations, and with the description of a more complete apparatus for making them, applying himself the result of them in the same manner as before.

This will be best understood from his own work, by the following sentence in an advertisement, with which the book last edited commences.

“ As the trials recited in that publication (meaning the first edition 1779,) had been made under many disadvantages, I soon afterwards found, upon a careful repetition of them, that I had fallen into considerable mistakes in my conclusions respecting the quantities of heat contained in the permanently elastic fluids.”

“ I per-

“ I perceived, however, that these mistakes did not affect the explanation which I had given of animal heat and combustion. For though it appeared that the excess of the capacity of dephlogisticated, above that of fixed air, was not so great as I had at first imagined ; yet, from an extensive series of experiments, which were made with the most scrupulous attention to accuracy, it was evident that the difference of the capacities of those fluids was such as to afford an adequate explanation of the phænomena”*

There are, however, two material new points in this last edition, which I must take some notice of.

The first is, the fourth proposition which DR. CRAWFORD has added, and which is as follows : “ When an animal is placed in a warm medium, the color of the venous blood approaches more nearly to
K k 2 “ that

* DR. A. CRAWFORD ON ANIMAL HEAT. Second edition.
1788.

“ that of the arterial, than when it is
“ placed in a cold medium ; the quantity
“ of respirable air which it phlogistifies,
“ in a given time, in the former instance,
“ is less than that which it phlogistifies,
“ during an equal space of time, in the
“ latter ; and the quantity of heat produced,
“ when a portion of pure air is
“ altered by the respiration of an animal,
“ is nearly equal to that which is produced,
“ when the same quantity of air is altered
“ by the burning of wax or charcoal.”

“ That the difference between the color
“ of the venous and arterial blood, in a
“ living animal, is diminished by exposure
“ to heat, and increased by cold, appears
“ by the following experiments.”*

This proposition strikes my mind as further proving a probable connection, in the generation of animal heat, between the cutaneous process of perspiration, and the variable state of the atmospherical air. But I shall reserve the fuller consideration of it to more leisure, at a future period, it not being

being essentially required to be further prosecuted at this time.

The second point is as follows :

In his section on the principal^{al} facts relating to animal heat, he has added the following remark :

6. “ I shall observe (says he) in the last
“ place, that the doctrine contained
“ in the preceding pages, respecting
“ the cause of animal heat, will probably lead to an explanation of the
“ uses of the spleen and of the lymphatic glands.”*

The time which I have limited to myself for finishing the present publication, will not permit me to descant upon the merit of DR CRAWFORD's theory, respecting the use of the human spleen ; neither is it immediately to the object of my own work. But his observation on the probable use of the lymphatic glands, as connected with his

his doctrine of animal heat, interests me much ; and I shall, therefore, repeat verbatim, the whole he has said on this point.

“ As to the lymphatic glands, there is
 “ reason to believe, that the arterial blood,
 “ which is converted into venous, in those
 “ glands, attracts from the lymph a quantity of the inflammable principle, and
 “ communicates to it a portion of elementary fire. It is probable that the lymph,
 “ by this alteration, is rendered more fit
 “ for becoming one of the constituent parts
 “ of the blood.”*

This, to me, novel idea, which I have only been made acquainted with since I penned the preceding pages of this section, calls from me the following observations :

I fear that the ingenious author does not mean, in the preceding passage, the lymph of the blood itself, not even the venous portion of it, but that lymph which is to be considered as a specific secretion of the glands themselves. However, whether I

am

am right or not in thus explaining the author's meaning, I think it may be fairly implied, from such language, that all our fluids may equally contain more or less of that inflammable principle, phlogiston, if the lymph of these glands can be admitted to contain it. If this conclusion be reasonable, I think I am then justified in what I formerly advanced, respecting the mode of action of the atmospheric air, on the probable contents of the air cells of the lungs, as well as on the outer surface of the body, by the chemical action of the perspirable vapour exhaling from them.

If the lymphatic glands have any influence at all, in regulating and controuling the equable distribution of the animal heat, I should rather be inclined to think, that it would be somewhat better explained in the following manner, still adhering to the leading principle of DR. CRAWFORD's doctrine, as well as to my own more extensive application of it to physiological and pathological purposes.

To

To be as short as I can:—I will suppose, that the human blood is gradually but constantly acquiring a certain degree of the phlogisticated state, through the whole of its round in circulation, from a phlogistic process inherent in the animal constitution, and that it therefore requires, in a particular manner in the hot animals, according to the velocity of the fluid circulating, a certain deliquation, depuration, or cleansing, at different parts of the body: for which purpose such animals are peculiarly furnished with the function of respiration, and a double circulation. This, however, local operation could not be attended with a general effect.

The venous blood, therefore, after it has been cleared of its excess of phlogiston in the lungs, and has again become arterial, must have acquired, through its first course of the circulation, namely, the arterial portion, before it can have arrived at all the extreme capillary arteries, so much additional phlogiston, perhaps from its own motion, as well as the common temperature of the body, as then to require some degree
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I therefore think, that the arterial blood, when it has arrived at the lymphatic glands, may again be in need of some additional heat to separate its redundant phlogiston, (rather than to give out its heat, and receive phlogiston, as DR. CRAWFORD imagines,*) which, on my doctrine of the cutaneous generation of heat, may very reasonably be supposed to take place, if the proper vessels, leading to the lymphatic glands, and arising either on the outer surface of the body, or the cellular surface of the lungs, have an inherent power in them of absorbing heat, when it has been separated from the atmospheric air, by the greater attraction of phlogiston in the ferrous and lymphatic part of the blood, to the pure air or nitrous principle of the surrounding, as well as the inhaled, atmospheric medium.

In the manner in which I have now
 supposed the use of the system of the

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* See a quotation at page 254.

absorbing vessels and lymphatic glands to be ordered, it may afford a reason why these vessels are so numerously furnished with valves : for as the absolute heat of the atmospheric air may be taken in, under the form of sensible heat or a vaporous fluid, it surely might very readily suffer by a retrograde motion of the aerial part of it, or even when wholly condensed, if this organization did not somewhat secure it from so very easily escaping.

Whether I have been consistent and clear in what I have thus ventured to lay before my reader, and which I have wished at present to be understood in so brief a way, I must leave to those to determine, who have studied pneumatic chemistry more than myself. But on this physiological idea of a cutaneous generation of animal heat I shall attempt to give, in the following section, a pathological explanation of several morbid states of the human constitution.

SECTION II.

A GENERAL COMMENTARY ON THE WHOLE OF THE DERMATO-PATHOLOGIA, CHIEFLY FOUNDED ON THE THEORY OF ANIMAL HEAT MENTIONED IN THE PRECEDING SECTION, AS FURTHER EXPLAINING AND SUPPORTING THE DIFFERENT PARTS OF THE NEW IMPETIGINOUS PATHOLOGY, PARTICULARLY BY ALLUDING TO A CONNECTION BETWEEN SUCH DISEASES AND THE CAPILLARY ARTERIES AND ABSORBING VESSELS OF THE SKIN, AS ENDOWED WITH AN INHERENT PRINCIPLE FOR REGULATING AND CONTROUING ANIMAL HEAT.

I DO not think that any thing can better justify my persisting in the object of this work, and in my variegated attempt to unravel the mysteries of cutaneous dis-

ease, than the universally admitted errors and imperfections in our hitherto-acquired degree of knowledge on this extensive branch of medical practice.

I have therefore taken the liberty (without the fear of its being imputed to me, that I have uselessly employed my time) to throw out every thing that my imagination could conceive to be at all related to their hidden nature, and to be likely to lead the human mind to a more satisfactory and rational explanation of their varieties, and of their connection with the diseases of the constitution at large, than is at present to be met with in books on this subject.

Although a strong advocate, through the whole of my system, for the influence of the solids of the animal machine over the fluids which circulate through them, as the leading principle of impetiginous complaints, I am not so bigotted to this particular doctrine, as not to venture most readily any other opinion, though on a slight view different, which might carry
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with it the appearance of better explaining any particular genera or species of such diseases.

I have therefore in the preceding section laid the foundation for thinking, that there is a probability of the fluids being, *on some occasions primarily* concerned, in as far as they may be under the influence of the principle generating heat in the animal œconomy.

But as this process appears to me to be under the guidance of very irritable solids, namely, the exhalent arteries and the absorbing vessels, it does not, in my humble opinion, take from the general principle, or ground of reasoning, laid down by me, and advanced by the celebrated CULLEN, “ That the affections of the motions and “ moving powers of the animal œconomy “ must certainly be the leading enquiry, “ in considering the diseases of the human “ body.”*

I shall

* Preface to his FIRST LINES, 1784.

I shall therefore firmly proceed to apply DR. CRAWFORD's doctrine of the generation of animal heat, together with my supposed cutaneous function co-operating with it, to the pathology and proximate cause of impetiginous affections, as well as to some other diseased states of the system apparently connected with them, or with some part of the theory which has been advanced. But I, in a particular manner, think the enquiry important, in several points of view, as connected with the principal objects of a DERMATOLOGIA NOVA, yet shall content myself at present with a brief application of the doctrine to some of the leading objects of the preceding impetiginous system.

Preparatory to my entering upon this explanation, I must say a few words more on the difficulty my mind labours under of comprehending what the learned DR. CRAWFORD has exactly meant by the language of *an absorption in the lungs of absolute heat, from the atmospheric air*. This expression he has not fully explained, at least to my mind; and I am further at
a loss

a loss to know, whether the ingenious author has intended to confine the principle of phlogiston, as acquired from the constitution, only to the red globules of the blood, that is, to the blood only in its red state, when it is to be subjected to the respiratory chemical attraction.

If this has been the meaning and extent of DR. CRAWFORD's language, I cannot comprehend how the blood can come into contact with the atmospheric air received into the lungs, so as to allow the supposed chemical attraction to take place. For though DR. PRIESTLEY's experiments prove, that pure air and inflammable air act, in an equal degree, on venous and arterial blood, when a thin bladder is exposed between them, as when they are in direct contact with each other, it is not to me a sufficient proof, that the same takes place in the lungs of a living animal, *i. e.* that the admission of pure air, and emission of inflammable air, should equally and in the same manner take place, when the fluid is in constant circulation through an animated machine,

machine, and the vessels containing it have the principle of life, to subject them, if pervious to such fluids, to the consequences of excitement and irritability. Is the same mode of attraction to be considered as taking place in all parts of the body, when a supposed state of putrescency in the fluids is the immediate agent of it?

Several medical gentlemen with whom I have held conversation on this subject, have imagined, that the attraction certainly took place through the coats of the capillary vessels, in the air cells of the lungs. This appears to me most improbable, both in them, as well as every other part of the body. But if my reader can agree with me, that the principle of phlogiston is equally a constituent part of the serum and lymph, which seems to be corroborated by several observations in the last edition of DR. CRAWFORD'S work, it then may be readily understood how they meet, viz. from the lymph effused during every inspiration into the pulmonary air cells.

If this be not the way, which will explain all the phænomena of respiration, then it must be admitted, that the process takes place through the very coats of the blood vessels, both for the admission of the absolute heat, and the emission of the phlogiston. But, from the glaring improbability of this, I am disposed to conclude, that the serum, or sero-lymphatic vapour, throws off the phlogiston, which then immediately and readily comes into contact with the atmospheric air, in what are called the air cells, or cellular surface of the lungs. It is clearly so to me on the skin; or it must be supposed, that the attraction, or exchange of fire for phlogiston, there takes place even through the condensed and insensible cuticle. Indeed it may be on the principle of this external chemical process, that the cuticle is formed from the coagulating portion of the serum, and sero-lymphatic part of the blood.

It is further to be observed, that, from the sudden change which takes place in the blood of the pulmonary arteries, after it has reached the pulmonary veins, it will

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become necessary, if consistency in the respiratory doctrine is to be preserved by my mode of explaining it, to stamp the absorbing principle on the system of capillary veins. The phænomena of respiration justifies this deviation from the general absorbing principle in the constitution. For if the lymphatic absorbents of the glandular system had acted on this occasion as elsewhere, the absolute heat absorbed would have taken a different course, and could not have been instantaneously conveyed to the blood of the pulmonary veins, in which alone the grand revolution takes place.

ON DR. CRAWFORD'S principle the absorption must be brought about by the pulmonary veins, to account consistently for the sudden difference in the appearance of the blood of those vessels, and of the pulmonary arteries: but if the absorption even took place through the coats of the vessels, it must be admitted, that it should as readily occur in the one kind, as in the other. In fact, the process would be this; the pulmonary arteries would give out through their coats their phlogiston, while
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the pulmonary veins would take in, by a similar way, the absolute heat, which the phlogiston separates from the air: otherwise it must be admitted, that the same kind of vessel, to wit, the pulmonary artery, is capable both of expelling the one, and receiving the other, by attraction through its organized coats.

All these points are at present inexplicable difficulties attending the explanation of these pneumatic phænomena in our constitution, and, though meriting investigation, it will be better at this time to drop them.

I shall now proceed to my explanation of some particular diseased states of the system, on the above physiological principles.

I. The above pneumato-physiological opinion of the office of the lymphatic vessels and their glands, in the animal œconomy, may serve to lead us to attempt a new explanation, and to establish a new proximate cause, of that hitherto inexplicable diseased state of the constitution, the

scrophulous temperament; and this again may tend to discover better prophylactic and curative means. DR. CULLEN has already characterized it as arising from “ a peculiar constitution of the lymphatic system.”* The above opinion may, therefore, plausibly apply, in as far as a redundant quantity of absolute heat from the air, or an inordinate or diseased action of the motions or moving powers of the absorbent system, in regulating the above supposed process or function of it, may be the spring and occasion of all glandular lymphatic diseases, and may, in a particular manner, promote the tubercular diseased state of the lungs, and other pulmonary affections.

II. I shall, in the next place, attempt a short application of it to scurvy. This is a disease on which so much has been written, even in later years, on very opposite pathological principles, that it affords a just ground for throwing out any new idea on the subject. It, therefore, has struck me, that this disease may have some probable connection with the above doctrine
of

* See page 16,

of animal heat, in as far as it appears evident, that the human phlogiston is a noxious principle in the constitution, and, therefore, its redundancy has been guarded against, by the process generating the animal heat, by the extreme exhalent arteries of the lungs, as well as by the perspiration on the external surface of the body.

This fact leads me to remark, that if it be a just observation, that the cold animals, who have no respiratory organs, can alone receive what absolute heat they have from the aliment in their primæ viæ, and if I am right in having considered noxious alimentary ingesta as a very frequent cause of impetiginous appearances, then I think it may be very fairly suspected, that the effects of a putrefactive alimentary fermentation, on DR. CRAWFORD'S doctrine of animal heat, may be, in a particular manner, concerned in the scorbutic affections of the outer surface of the body. For if we are to view animal heat in the light of a necessary stimulus to promote, and properly carry on, all the functions of the animal œconomy, it arises in my mind, as a question,

tion, how far “ a *certain* morbid state or “ impaired action of the system of capillary vessels”* may not be occasioned by the insalubrity of the phlogiston, or phlogisticated air, in the course of the primæ viæ, which must be, under such circumstances, superabundant, after it has been separated from the putrescent and unwholesome diet of sea-faring people. It may, however, operate, not in this, but, in some yet unthought-of, way, still remaining the exciting cause of the disease.

III. There are many varieties among the slightly febrile cutaneous disorders, and we still continue at a loss how to account for them. May it not be some unobserved or undiscovered action of the atmospheric air, on the arterious and absorbing vessels of the true skin, either by a noxious quality in it, or by its, in some way, occasioning a derangement in the proper balance to be kept up, between the necessary escape of phlogiston from the system by the exhalent arteries, and the due admission of a portion of the absolute heat from the atmospheric

tical air, by the action of the absorbents, that some kinds of the erythematous and erysepelalous affections of the skin are brought about, without supposing, that either the occurrence of an external injury, or the presence of a constitutional virus, is in any way concerned?*

IV. Again,—May it not be some kind of contest or collision between the human phlogiston, and the absolute heat of the atmospherical air, which is the cause, “Why, in MR. JOHN HUNTER’s opinion, “the skin and cellular membrane are so “extremely susceptible of the suppurative “stage of inflammation,” and the reason, also, from the supposed chemical process or attraction only externally taking place, at least in any very sensible degree, “that “the internal and deep-seated parts resist “it long?”†

V. The above theory may very particularly well apply to the general pathological idea, respecting the ordinary acrimony of the perspirable fluid, and may, therefore,

* Page 53.

† Page 54.

therefore, explain why it has been most frequently noticed by authors, as the most common exciting cause of cutaneous eruptions. Is there not a probability of that acrimony originating from the phlogisticated state of the sero-lymphatic part of the blood, intended to be carried off by the process of insensible perspiration? A previous detention of this fluid, from constriction of vessels, by its occasioning some irregularity in the escape of the phlogiston, and in the generation of heat, may be the reason of its producing sudorific and miliary eruptions; and of its also occasioning those particular sensations attending them, which have already been described as similar to the pricking of pin-points.*

VI. Further,—It may, in like manner, be the phlogiston of the human blood, which should be duly and regularly carried off by the insensible perspiration, that becomes the principal agent of that impetiginous acrimony, which is often the consequence of an effusion of serum under the cuticle; either from an exhalation, or a rupture of
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the capillary vessels, and thus may be the spring and occasion of that variety of appearance, so frequently observable in phlegmonic inflammation.*

VII. I have before noticed the difficulty of explaining the varieties of the small-pox, and the extraordinary difference between the distinct and the confluent sorts, both which have frequently occurred, even when received by inoculation from the very same subject, even from the point of the very same lancet. Encouraged by this difficulty, I shall venture to throw out the following quære :

May not this difference between the above species of that exanthematous disease, be founded on a deviation from some fixed principle of action in the constitution, between the phlogiston of the blood, and the absolute heat of the atmospheric air ? That is to say ;—May it not be supposed, that the blood has not, at such a time, properly attained, in every constitution under the particular animal process of the small-pox, acquired either naturally or from inoculation,

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a sufficient quantity of phlogiston in the course of the circulation ; and that, therefore, the insensible perspiration fails of attracting a sufficient quantity of absolute heat from the air, so as to excite that proper degree of warmth, and its consequent inflammatory action of vessels on the external surface of the body, which becomes necessary to stimulate them to the due formation of a laudable pus ?*

If heat be a substance, this is not improbable ; and a position in DR. CRAWFORD'S fourth proposition justifies this explanation of the variable appearance of the small-pox.

VIII. Moreover,—Various external offensive matters, when applied to the human skin, frequently beget impetiginous appearances. How will it apply here ? In the following way, I think. If there be a just and reasonable foundation for the belief, that a natural balance in the state of health is preserved, *ab origine*, between the escape, as above, of human phlogiston, and the admission of absolute heat by the external

ternal absorbing vessels, on the general principle of DR. CRAWFORD'S doctrine, it will go a great way to lessen the difficulty of explaining the *modus operandi* of all foreign offensive matters, by their probably interfering with, and deranging, that cutaneous process.*

When I reflect upon the great importance of the congenial irritability of the outer surface of the human body, in giving, by the means used on such occasions, atmospheric life to the still-born infant, I think it confirms the idea of a cutaneous principle generating animal heat: and that extraordinary floridness of the skin of new-born infants, which lasts for many days, further convinces me, that an atmospheric action on the skin is necessary to the excitement and support of animal life.

IX. The principle generating animal heat, admitting it to be a process in the animal œconomy, which has not yet been fully developed, may be further connected

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with animal motion, or the principle of the moving fibres, in as far as it has been clearly proved, that the extreme arterious vessels of the circulating system, are so peculiarly furnished with a considerable quantity of muscular action and excitement, with probably this intent among others, namely, to propel the blood with sufficient force into the very terminations of the exhaling arteries, that the proper quantity of phlogiston may escape by them, in order to promote a due separation of absolute heat from the air, for the preservation of perfect health : and if this pneumatic chemical process is so animalized, and stamp'd on the inherent nature of all exhalent arteries, which come into contact with the atmospheric air, may not an universal interruption to the due action of all these external capillary arteries, by the remote causes, as being concerned in the supposed acquirement and support of animal heat, be the chief pathological principle producing atony, spasm, and re-action, in the origin and constitution of all pyrexial diseases, especially those of the febrile order ?*

X. Atmospheric

* Pages 127 and 128.

X. Atmospheric cold has been enumerated among the remote causes of impetiginous disease, as a very common one, and it has also been observed, that it produces such affections most frequently in the sanguineous temperament. May not this combination of the remote and predisposing causes, the cold and the temperament, be in some way connected with an alteration, or derangement, in the chemical process of animal heat?—Further; may it not be on this principle accounted for, independent either of its atonic or spasmodic effects on the muscular irritability of the capillary vessels, why the parts of the body, most exposed to the action of the atmospheric cold, should be most liable to impetiginous eruptions. This opinion appears to me supported by the axiom mentioned in DR. CRAWFORD'S fourth proposition, that more air is phlogisticated in a cold medium, than in a warm one.—May not, also, the extreme morbid degree of atmospheric cold on the human body, to which our fellow creature has too often been fatally exposed, occasion the quick and certain destruction of human existence, by a *modus operandi* on the principle

principle of destroying the vivifying power of the extreme cutaneous, as well as pulmonary, vessels, so completely, as to occasion an universal paralysis of them? This appears to me probable, if I am at all justified in supposing, that all these capillary vessels are so essentially subservient to the generation of animal heat.*

XI. It has been observed before, that violent passions of the mind frequently redden the skin. The lesser ones even often cause the blush of the cheek. This temporary sensation of increased heat, in the parts reddening, may also depend upon the increased pneumatic action between the exhalents and the absorbents on the outward surface of the body, through the medium of the atmospheric air, in the manner attempted to be explained in the preceding section.†

XII. As the healthful state of the capillary system depends on a due tone and action in its muscular power; and as animal
heat,

* Page 133.

† See, also, page 140.

heat, in DR. CRAWFORD'S opinion, is promoted in the lungs by a due balance between the extremes of the circulating system, that is, between the action of the heart and the extreme vessels, so may the diminished or enfeebled condition of that power, prevent the surface of the lungs from attracting the necessary quantity of heat from the atmospheric air, and may equally occasion the cutaneous exhalent arteries to be defective in their vital energy, if heat can be in any way a cause supporting their healthful action. On the principle of a temporary interruption in the balance of the human circulation, DR. CRAWFORD has explained, in his particular way, the phenomena of the cold stage of fever.

XIII. Uncleanliness has been particularly taken notice of, as a frequent exciting cause of impetiginous appearances. May not its *modus operandi* interpose between the healthful function of the *cutis vera*, either as an *emunctory* to discharge the super-abundant phlogiston of the habit, or as an organ of absorption for the taking in

in a certain quantity of absolute heat, by the chemical attraction of the human phlogiston to the fire of the atmospheric air? This appears to me to be a probable way of its becoming injurious to the skin and the constitution, in addition to what I before threw out, respecting its preventing the perfect formation of the rete mucosum and cuticle.*

It is said of blood, that it has an attraction to inflammable air, and that, when it arrives at the capillary arteries, it may obtain it from different parts of the system, by which the venous blood becomes loaded with that principle. Is it, therefore, to be supposed, that it acquires it in approaching the skin, and that it there parts with it to receive heat through the coats of the vessels, on the outer surface of the body? and that in this way it produces the variable flush of the skin, and the floridness of a new-born infant? For if a phlogistic process in the habit occasions the difference between arterious and venous blood, I should suppose, that this difference

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ence would certainly exist in the greatest degree, in the arterial part of the capillary system, as most endowed with muscular excitement and irritability, by which the inflammatory temperament is formed and supported : and that it would not afterwards increase, from the effect of the circulation solely, when the blood was flowing from smaller to larger vessels, unless a slower circulation can be the principle causing and aiding the phlogistic process, and thereby occasioning the superior degree of the phlogisticated state, in the venous over the arterious blood : then it should proportionally increase through the venous portion of the circulating system, and be in a particular manner promoted by the circulation of the chylo-poietic viscera, and especially by that of the liver ; and by its course through the sinuses in the different processes of the dura mater of the human brain.*

Whatever be the constitutional cause
generating the human phlogiston, the
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* See DR. CRAWFORD's opinion of the use of the spleen, and on the circulation of the celiac and mesenteric arteries, in his observations on animal heat. Page 400.

chemical attraction of it in the blood to pure air must be very great indeed, to compel it to pass through the coats of living vessels, to obtain in exchange atmospheric heat, and from a fluid too already having a considerable attraction to it, and at a part, *to wit, on the skin*, where its separation cannot be supposed particularly promoted, in a state of health, by any extraordinary heat and putrefaction, from an internal cause. But such becomes the difficulty of explaining the phænomena of a living animal, by the laws of inanimate matter, and I shall rest satisfied if my opinions but carry with them the appearance of a clearer approximation to consistency and truth.

I cannot conclude this general commentary on the different parts of the DERMATO-PATHOLOGIA, from the induction of a cutaneous theory of animal heat, without noticing a particular observation and opinion in DR. CRAWFORD'S last edition, respecting the result of the union of pure and inflammable airs.

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According to MR. CAVENDISH's experiments, the union of pure air, and inflammable air, as obtained from metals by the vitriolic acid, produces water. This fact has led DR. CRAWFORD to make the following observation: "It is possible, that a portion of the pure and inflammable *airs*, which meet in the lungs, may undergo that peculiar mode of combination, by which water is produced." And from it he concludes, "that the pure air received into the lungs, combines with the inflammable principle, which is extricated from the blood, and that, by this combination, it is partly converted into fixed air, and partly into aqueous vapour."* Here DR. CRAWFORD adds the following, as a note to his observations. "*After I had written the above, I found that DR. HIGGINS maintains the same opinion. See experiments on acetous air.*" It is pleasing to me to discover, that the minds of so many learned men, in this philosophical age, incline to the same reasoning, as a fixed principle, to

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* CRAWFORD ON ANIMAL HEAT, &c. 1788. Page 154.

account for the pneumatic operations of an animal machine.

The above ingenious mode of explaining the evaporation from the lungs, on a fixed chemical principle of attraction between pure and inflammable airs, raises in my mind a suspicion, that we have not been yet in the full possession of the true nature and origin of our cutaneous perspiration, and tempts me to offer the following elucidation of it.

How often are we witnesses to its excess, in a most extraordinary degree, both partially and universally, without its appearing at the time to be occasioned either by an unusual relaxation, or an increased action, of the exhaling vessels of the skin, from the then concomitant state of the constitution at large. This has led me to suspect, that the perspirable dew, so often seen in innumerable globules on various parts of the body, is not always the product of the system, but may be either the atmospheric humidity, or a new product, condensed on the surface of our body, from either not
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being, as in the ordinary way, so freely absorbed, or from being in a very redundant manner afforded by the surrounding medium, on the same principle as just now quoted from DR. CRAWFORD, accounting, in his way, for the expiration of an aqueous fluid from the lungs.

I am, therefore, of opinion, that, on extraordinary occasions, if not in the ordinary state of the system, the pure air of the ambient atmospheric medium, in contact with the external surface of our body, combines with the human phlogiston exhaled by the perspirable arteries, and that, by the combination, the same products take place, as above described in the lungs, viz. a certain portion of fixed air, with the proportionable quantity of aqueous vapour. I do not know whether I might not say, that this chemical process may even take place on ordinary and unobserved occasions, if the insensible perspiration, as before hinted at in a note at page 226 of this work, contains fixed air, capable of decomposing lime water.

So confident am I, that a further investigation of this subject, as connected with the œconomy of a living animal, on the supposition of an universal principle generating and regulating heat in the human constitution, seriously merits the attention of the learned and experienced physician, as well as of the chemical philosopher, that I can almost foresee, that if it could engage the last named character, in experiment and further observation on the non-respiratory animals, it would greatly assist the medical philosopher to bring about a complete revolution in the present state of human physiology, and in the principles of pathology, and the practice of medicine. For it may, on the whole, be observed, that various other phænomena, attending the morbid state of the animal œconomy, do appear to me, on a cursory view, to support this general pneumatopathological idea, independent of the facts which could be still borrowed from anatomy and natural history, and which have been long discovered by philosophical experiments and observations. But much
time

time and extensive reading, as well as experiments on living animals, become necessary to complete the future investigation of this doctrine.

I have, on the present occasion, endeavoured, in as short a way as the nature of the subject would allow me, to point out an apparent connection between the outward surface of the human body and its diseases, with a probable cutaneous process for acquiring, as well as regulating, animal heat from the atmospheric air, on the principle of DR. CRAWFORD'S ingenious theory of the use of animal respiration. I believe it cannot be disputed, but that there are sufficient facts made known in late years, by the indefatigable researches of philosophical men, to raise in the mind of a reflecting person a belief, that the above physiological principles may be, from some universal law in nature, well founded: and, to the judgment of professional men, of greater erudition, and of longer observation and experience

rience than myself, I shall for the present leave this hasty elucidation of the subject.

As the purport of my next section is to take some notice of a new opinion respecting the proximate cause of scurvy, on pneumatic principles, I may then find reason to mention a few circumstances, which will further illustrate this newly supposed cutaneous process.

SECTION

SECTION III.

A NECESSARY ENQUIRY INTO A NEW OPINION ON THE SCURVY, ADVANCED IN A RECENT EDITION OF A TREATISE ON THAT DISEASE, FROM THE FIRST HAVING BEEN NOTICED IN THE FORMER PART OF THE WORK, AS WELL AS FROM ITS BEING CONNECTED WITH THE PRECEDING DOCTRINE, AS DEFENDED BY ITS AUTHOR ON THE INDUCTION OF PNEUMATIC CHEMISTRY.

IN the second section of the body of this work, expressing, that *scorbutus* very properly belongs to the order of *impetigines*, I first observed, that in the writings of DR. CULLEN the disease has been attributed to the absorption of a noxious nourishment, from putrid alimentary ingesta, which opinion, as far as it respects

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the fluids being the seat of the disease, was then defended and approved by MR. TROTTER, in the first edition of his treatise. This author's arguments then went to prove, that *a preternaturally saline state of the blood* was the proximate cause of this disease.

Since that period, DR. TROTTER's observations, experience, and reflections on the subject have induced him to alter his opinion respecting the pathology of SCORBUTUS, so much so, as to claim of me a particular enquiry into its merit, not only because I have already noticed this gentleman's former opinion, but because the novelty of his recent ideas bears some relation to the pneumatic principle, which has been supposed by me to generate heat universally, in the human body.

Before I proceed, it is just and proper I should inform my reader, that I have been made acquainted with this author's last opinions on the subject but a very short time, and wholly so since my reflections led me to the compilation of the
preceding

preceding sections, supporting the probability of a cutaneous generation of animal heat, on a phlogistic principle.

The first time I saw the title page of DR. TROTTER's last edition, I had reason to expect, that I should find something very analagous to my own reasoning in the preceding sections, and I have not altogether been disappointed. But while his new thoughts on the subject help me the more certainly to establish the plausibility of the preceding doctrine of a cutaneous generation of animal heat, they have by no means satisfied me, that we are yet in the possession of all the knowledge which is necessary to lead us to a discovery of the real cause and origin of scurvy. I cannot help differing from him in his conclusions, on this ground, namely, that what DR. TROTTER has considered as the proximate cause, in his last edition, is rather, in my opinion, the therapeutic principle, on which the disease is removed.

As the work itself is not less ingenious, than the object of it is meritorious, I

shall pay particular attention to his recent reflections on the subject, particularly as I admire the spirit of investigation in the author of this essay, who would not be stopt in the career of his endeavours to discover more certain means of prevention, by the authority of any thing hitherto written on the distemper. I shall, however, endeavour to deduce a different proximate cause from his own *data*, agreeable to the general principles of my own impetiginous system, and shall hope that it may lead to what is still in DR. TROTTER's opinion wanting at sea, to wit, a more certain prophylactic treatment.

DR. TROTTER has divided his subject into the history, the theory, and the prevention, and cure.

In commencing the history of the disease, DR. TROTTER objects to that part of DR. CULLEN's definition, which says, "In regione frigida, post victum putrefcentem, salitum ex animalibus confectum

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“tum,” and offers the following as more agreeable to our present state of knowledge:

“Asthénia, stomacace, in cute maculæ
“diversicolores, plerumque livescéntes;
“deficiente simul vegetabili materia re-
“cente, eundemque vehementer ingerendi
“desiderio,” leaving out all allusion to
the above REMOTE CAUSES.

I cannot fully agree with the author in this alteration, though I approve of his addition respecting the patient's eager desire for vegetables. On his own principle THEY appear to me to have been very justifiably and fairly admitted by DR. CULLEN in his definition, for it cannot be denied, even by DR. TROTTER, but that they are most frequently connected either with the rise or progress of the disease: therefore, the few cases, on particular occasions, and under particular circumstances, to which that part of DR. CULLEN's definition may not so well apply, ought to be looked on as exceptions to the general occurrence of the disease.

DR. TROTTER is of opinion with DR. CULLEN, that there is “ but one scurvy, “ the same in its symptoms, however, at “ different times variously produced,” and thinks that DR. CULLEN has aptly termed the occasional causes the *antecedents* of scurvy. But why *aptly*, as alluding only to the particular kind of diet? Is not the term antecedent, as applied to this remote cause, analagous to the term predisposing? a bad diet certainly, though slowly, gives the evil disposition in the system: and is not the occasional cause of every complaint antecedent to its formation? We are not yet arrived at perfection in dividing the remote causes into their two kinds; thus some of the *predisposing causes* mentioned by DR. TROTTER are rather, in my opinion, occasional: for there ought to be a distinction made between the action of external causes, and the effect of predisposition from constitutional weakness.

Notwithstanding, that DR. TROTTER lays great stress on the influence, which the want of recent vegetable matter has
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in producing the disease, yet he often admits, that a general atony of the system lays the foundation of it. He has, no doubt, first observed, “ that where
“ recent vegetable matter abounds, the
“ disease, scurvy, is unknown ;” and,
“ that the anxiety to obtain fresh vegetables is the harbinger of the disease,
“ and its constant attendant through all
“ its stages ;” aggravated, however, by a desire to get on land, and to accomplish the voyage.

But from experiencing the great influence of the mind in provoking the disease, he could not avoid, in a secondary way, taking notice, “ that the depressing
“ passions of the mind very universally
“ concur in the production of scurvy ;
“ while those of the active kind have the
“ happiest influence to prevent it.” And as further proving, that an atony of the whole system disposes to the disease, he has proceeded to say, that “ whatever
“ can be considered as a debilitating
“ power, when applied to the human
“ body,

“ body, may be justly reckoned among
 “ the predisposing causes of scurvy.”

In enumerating the particular symptoms of the disease, our author has observed, that “ pains all over the body, often
 “ worse in bed, and particularly in the
 “ shin bones, resembling venereal pains,” precede the appearance of the disease : and that, in the further progress of the complaint, on the occurrence of the first external symptoms, “ the surface of the
 “ body *becomes* rough and dry to the touch,
 “ the pores of the skin are evidently con-
 “ stricted, and the patient feels the exter-
 “ nal air colder than usual.”

Such are the *leading particulars* in his history of scurvy, which seem to me to be connected with the subject of a DERMATOLOGIA NOVA. What he has further said on the *diagnosis* is applicable only to the disease, as it occurs at sea. He reprehends the prevailing opinion, that
 “ different species of cutaneous eruptions,
 “ even among medical men, still pass for
 “ scorbutic,

“ scorbutic, as being peculiar to certain constitutions.” But though the term *scorbutic habit* may be often founded on obsolete theory, I cannot fully agree with him in his opinion, that “ we should consider such as altogether fanciful.” I am firmly myself of opinion, that particular constitutions, even among landmen, under the influence of climate and season, aided by a neglect of the due attention to diet and manner of living, are subjected to impetiginous affections of the scorbutic kind, from the same principle, but varying in duration and degree, as well as appearance, from the slower operation of the various remote causes, whether predisposing or occasional; the ill effects of which are perhaps diurnally counteracted by circumstances in the non-naturals not to be commanded at sea. As a proof of this, it may be observed, that now and then a true scurvy will occur on land, characterized by all the leading symptoms of a real maritime one.

In commencing his observations on the theory of scurvy, DR. TROTTER has considered

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sidered the doctrine of its proximate causes as hitherto chiefly supported by *supposed chemical changes* in the blood: and has remarked, that even in our own times the CULLENIAN theory had contended for a preternatural saline state of the fluids, and had supposed it to be in this disease of the ammoniacal kind, *evolved* during the animal process in greater quantity than usual, from the abundance of marine salt taken into the body; and the provisions themselves, perhaps, in a putrid as well as a salted state. The issue of DR. TROTTER's reflections and observations is also of *the same* complexion.

The frequent occurrence of the disease after a particular kind of diet, naturally led to the idea of its being of a putrid nature, strengthened by the desire in the afflicted person for fresh vegetables: but in DR. TROTTER's opinion, the term *putrid* ill applies to the nature of this complaint; and he laments that the modern chemists, who have so much enriched the science, should not have guarded against the common use of the term *putrefactive fermentation*,

tation, as not justly applicable both to the decaying of vegetables, and to the putrefaction of animal substances: for it appears, “ that the former yields nothing else “ than inflammable air, or the *hydrogenous* “ *gas*; but the effluvium from the latter is “ found to be *ammonia*, or alk: vol: and “ composed of a substance peculiar to animal “ matter, and the hydrogene.”

DR. TROTTER objects to the application of the above ammoniacal doctrine to the state of the blood in scorbutics, on the weight of the following phænomena in it: in the first place, because it has no particular smell and coagulates; and secondly, because it does not grow sooner putrid than other blood, in the same temperature of heat. These circumstances he has considered as incompatible with a preternaturally ammoniacal state of it. But he has observed, that the blood of a scorbutic patient is manifestly of a darker colour than the blood of other people; and that the serum of such blood is said to be of a more acrid quality than natural.

When the theory of *fixed air* became adopted by several pneumatic philosophers,* to explain the phænomena of disease, and was believed to be confirmed by their experiments, as proving it the cement, or bond of union, by which all inanimate matter cohered, the putrid tendency of the blood in scurvy was attributed to the want of that principle, the restoring of which formed the object of their therapeutic treatment. But DR. LIND, the celebrated writer of the modern day on this disease, is reported from his own observations, to have found the blood of a scorbutic in an healthy state : he therefore sought for the pathology of the disease, in the indigestible nature of the diet of seafaring people, which in his opinion occasioned a debility in the digestive organs.

Both these doctrines are confidently objected to by DR. TROTTER, as unsupported by the uniform symptoms of the disease. He also takes notice of a much
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* SIR JOHN PRINGLE, DOCTORS MACBRIDE, HALES, &c.

later opinion than either, advanced by DR. BLANE, in his "observations on the diseases of seamen." "It has long appeared to me," says this author, "that the scurvy is owing rather to a defect of nourishment, than to a vitiated state of it." All these opinions, as founded on the doctrine of a *direct debility*, are attempted to be invalidated by the arguments and observations of DR. TROTTER.

Before proceeding to this object he has, however, thought it proper to make some strictures on the quality of sea diet, as being salted. The author is of opinion, contrary to LIND, that the salt of the sea provisions is hurtful, notwithstanding it has been observed by LIND, that sea-water itself has been taken largely without detriment. But DR. TROTTER properly remarks, that it is then so diluted, as to be carried off very readily by the emunctories; and he therefore thinks the experiments of SIR JOHN PRINGLE and others, concerning the antiseptic properties of sea salt, unworthy to be mentioned,
in

in explaining any process within the human body.

After leaving it a question, whether sea salt undergoes any change in the animal body, DR. TROTTER is, from experiment, of opinion, that salted provisions out of the body do; *i. e.* that there is a chemical attraction between the flesh of beef and sea salt, which becomes the principle of its preservation, and which is alluded to, by what is, in common language, called, *the taking on the salt*: and that when the attraction, by length of time is destroyed, the meat putrifies.

If these opinions, however be true, though they have not yet been proved by the ingenious author, it remains a question in my mind, in what manner the defect of attraction is brought about, so that the provisions should, from length of time alone, suffer a decay. It appears to me, that the author may have conjectured too much here; for if animal matter is prevented from decaying, on the principle of a chemical elective attraction, it may
be

be presumed, that the preservation of it would continue for ever. The established laws of such attractions must be deemed invariable. Something more, therefore, than length of time must break through the chemical cohesion; and still, when it takes place, it may remain a matter of doubt, on which part of the compound, that is, whether on the animal, or the saline, part, the third power acts: but it must be left to the chemical investigator to determine, whether the decay is owing, or not, to the effects of the salt upon the meat, or to any other cause.

DR. TROTTER even talks of a double elective attraction taking place, in order to account for the change, which he has observed, both in the bones, as well as the flesh, of the provisions which have been kept for any length of time. I am obliged to admit the fact, that the provisions do in time so much decay; but I should be most inclined to think, that the change is brought about by the action of the atmosphere on the saline portion of the seaman's diet, weakening its preservative power,

power, rather than to the gradual corrosive effects of the marine salt on the quality of the meat. The subject; however, more properly claims the attention of the chemist.

It does not appear by the various writings on this subject, that a farinaceous diet is always hard of digestion. It, on the contrary, seems to have been very beneficial on some occasions.* DR. TROTTER considers it less injurious than the salted provisions, notwithstanding that he has admitted; that the unfermented farinacea form a diet not so easy of solution as might be wished.

Much stress has been laid by some practitioners on the indigestible nature of the farinaceous aliment. But DR. TROTTER has further observed, that the symptoms of indigestion do not follow the use of this diet, as being hard of digestion. This he thinks evident from a debility of the digestive powers not being an essential attendant on the disease in question, either under

* LIND'S ESSAY ON THE HEALTH OF SEAMEN

under the use of the farinaceous or animal diet

So strenuous is our author for maintaining, that the stomach does not suffer under this disease, that he quotes several authors who have noticed, that the stomach remains undisturbed, and the appetite good, even under the sole use of farinaceous and vegetable diet, from which circumstances it would appear to him inconsistent to suppose, that the stomach would crave that food, which had already been the cause of disease.

DR. TROTTER next observes, that the advocates for a *direct debility*, as the principle in their pathology of the disease, either from a defect of nourishment, or a vitiated state of it, have not told us, that an emaciated condition of the body was one of its symptoms. He has, on the contrary, remarked, that the spare habit of body least favoured the approach of scurvy, which he is clear is never attended with emaciation as a pathognomonic symptom. In this opinion he seems to have been

supported by the observations of his medical acquaintances in the navy: for the contrary has been reported by them, as frequently occurring; viz. that in a corpulent state of body, the most hideous features of the disease are expressed; such as the bloated looks and countenance; swelling of the legs; oppression about the chest; depression of the spirits, &c.

Here I shall observe, that if the scurvy riots in such constitutions with peculiar virulence, and in those alone terminates in sudden death; and if the above be the symptoms in the worst of cases, I think it may be fairly implied, that the fatality is occasioned by the injury done to the *VIS VITÆ*, and to the motions and moving powers of the system, and that the fluids, which ought to circulate, are in a secondary way only affected.

There is an observation made from DR. LIND'S work, which it will be here proper to notice. "Persons," says he, "very
" much emaciated either with the flux
" or consumption, are seldom or never
" seized

“ seized with the scurvy.” I do not know how this is to be accounted for, unless on one of the two following principles, viz. either because these diseases are of a specific nature contrary to scurvy, that is, that they are attendant on the inflammatory temperament, and caused by a peculiar acrimony, or that the human constitution is not liable to two diseases at one and the same time. Again, it does not follow, that because such persons are very much emaciated, there must exist the true idiopathic debility, or universal loss of tone in the muscular fibre, which has been supposed so particularly to dispose to scurvy.

DR. TROTTER goes on to prove, that the indigestibleness of a sea diet is not the cause of scurvy, by observing, that the acids used in the cure of scurvy do not injure or weaken the digestive powers, though such are often very freely used, even to an incredible quantity. But this is not the case on many other occasions, and it is very properly observed, that they particularly disagree, even in small quantities,

tities, in dyspeptic and hypochondriacal affections.

From the whole of these remarks the author concludes, “ that a sea diet is not
“ productive of scurvy from being hard
“ of digestion, or not affording sufficient
“ nourishment, and that in this disease,
“ there are, really, no symptoms of a
“ weak stomach present.”

DR. TROTTER next proceeds to his own particular opinion. He avoids offering
“ arguments against the debility present
“ in the scurvy; on the contrary, the
“ relaxed tone, and diminished cohesion,
“ of the muscular fibre are admitted in
“ their fullest extent.” And he readily allows, that the remote causes are of a debilitating nature. But his NEW OPINION is, that there is a state of body to be corrected, independent of that debility in the primary moving powers, and not to be accomplished by means to restore the tone and tension of muscular fibres.

Consistently

Consistently with these ideas, he says, that the predisposing and occasional causes only accelerate the approach of scurvy, by the general debility which they induce: and he afterwards supports the opinion, that a deficiency of recent vegetable matter, and not a diet of salted meat, is the immediate cause of the complaint. So much has he made up his mind on this point, that he says, “ cold is not necessary to excite the disease; that it is equally found virulent in its symptoms between the tropics as at GREENLAND; that even a humid atmosphere is not necessary,” as it is to be met with in the mildest dry weather; and that “ even an unfavourable predisposition of the body is not required,” when the above immediate cause operates on the system. For DR. TROTTER has seen the disease attack the *hardy seaman*, against his resolution of mind to prevent it, and the effect of exercise to overcome it. There is, however, an evident contradiction in the tendency of some of these observations.

As

As a striking instance where the *predisposing* causes to health, from climate and weather, were favourable, he has mentioned DR. BLANE's account, when it attacked the whole fleet under LORD RODNEY's command in the year 1782. This experienced author was then of opinion, that the disease, on that occasion, was to be attributed to the sea diet, as the sole cause, for the crews had very few refreshments in port before they failed.

As further leading to the investigation of the particular pathology of scurvy, DR. TROTTER has observed, that “ The debility attending it is of so singular a nature, that nothing seems analagous to it; and that there is no disease related to it, by any concurrence of symptoms, or method of cure.” Wine will not prevent it, much less cure it; and it is not even desired by the most desponding scorbutic patient.

“ The celebrated PERUVIAN BARK, given to the utmost extent, has never been

“ been known to check *its* progress, or
“ cure the scurvy.” It has not been even
found useful by the navy surgeon in the
scorbutic ulcer, covered with its coat of
blood: although, in so short a space of
time as twenty-four hours, limes and le-
mons have altered the condition of such
sores, and have disposed them to put on
a florid and healthy appearance. A diet
of fresh meat is not even necessary, for
the cure will be effected by only allowing
fresh vegetables, and particularly the acid
fruits, to the seamen. A plentiful supply
of apples has been also known to cure
the scurvy in a very few days.

Emaciation and debility are sometimes
caused to a very great degree, by the use
of acid fruits. This was the case among the
negroes under the care of DR. TROTTER;
notwithstanding which, the cure went on
progressively by their use, though they
had constantly occasioned a very lax and
purging state of the bowels, and a consi-
derable degree of emaciation. Thus, the
antiscorbutic effects of the fruit were not
lessened by such an operation. These facts
confirm

confirm DR. TROTTER in his opinion, “ that there is *a state of the body to be corrected, besides the debility.*” DR. BLANE has recorded a striking instance in support of this opinion,* which DR. TROTTER considers as a strong argument against the gradual diminution of the vital power being the proximate cause of the disease.

The occurrence of the disease scurvy on the ALPS, and of those diseases in the mild climate of NAPLES, the petechial fevers and dry gangrenes, as arising from the same cause, to wit, a famine, and recorded by DR. MILMAN in his *enquiry into the source of the scurvy and putrid fevers*, is accounted for by DR. TROTTER on a different principle from the last named author, namely, that the want of a vegetable diet had occasioned the disease on the mountains, but from its abounding in the vallies, it had secured the inhabitants from that complaint, though it had predisposed their bodies to receive the contagion of typhus. This fact

* Page 301 of his observations.

fact has led DR. TROTTER to make the following general observation. “ We are acquainted with, and can allow, no other modification of the remote causes, as influencing the operation of a sea diet, than what arises from a deficiency of fresh vegetable matter. From the most northern latitude of the arctic circle that has been navigated, to the equator, its effects have been constant and uniform in producing ONE DISEASE.” “ The effects of a sea diet are not even altered by the concurring action of humidity, fatigue, preceding illness, sedative passions, &c. though these will occasionally accelerate the approach of scorbutic symptoms.”

After some observations on the practice recommended by LIND and MILMAN, as being inconsistent with their theories; on the impropriety of recommending the lemon juice, and citric acid to be diluted, in order to render them the more sudorific and diuretic; and on the effects of keeping up the patients spirits, by good news, &c. as being apparently exaggerated by the

above authors; (though in my opinion DR. TROTTER has too much disbelief about him in this particular,) he sums up his arguments against the doctrine of debility, by the following general conclusions.

1st, That a seaman's diet, as consisting of salted meat, &c. does not produce scurvy, by weakening the digestive powers, from its indigestible nature, and thereby abstracting nourishment from the body.

2dly, That the debility which accompanies scurvy cannot be cured by those means, which are found, in other cases, to be most effectual in restoring the tone, tension, and contractibility of the weakened muscular fibre. And

Lastly, That the proximate cause of scurvy is still to be sought for, from some peculiar state of the blood.

I am now approaching to that part of DR. TROTTER's work which interests me most, in respect to my own conclusions from the preceding facts, and mean in a particular manner to have an eye to the hope he has expressed, of obtaining, by his perseverance,

severance, that assistance from the *materia medica*, which is now only to be found from recent vegetable matter: for fresh vegetables, he observes, are difficult to be procured, when the disease is most fatal, viz: in ships at sea. He still remains so convinced of our present imperfect knowledge of this disease, and of the difficulties attending the investigation of it, that he has been driven to acknowledge, that “ what we now know, may, to some appear sufficient for the purposes of curing it; but, *for his part*, he is not yet so fully satisfied.”

The only change in the state of the blood, properly authenticated by writers, appears to be in the colour. This circumstance had been very early noticed by DR. TROTTER, as appears by the following note at page 36 of his first edition. “ The blood which flowed by these hæmorrhages (meaning from the nose and the intestines) was always of *a darker colour than natural*.” The remark has been general among the navy surgeons. LIND has observed, that he only once found it

of a ruddy colour ; but this patient was feverish. From the effect of lemon juice in twelve hours on the scorbutic ulcer DR. TROTTER is of opinion, that it quickly restores the ruddy colour to the blood.

In proof of this condition of the blood, DR. LIND has said, “ that when the lips and
“ corners of the eyes, where the blood
“ vessels are most exposed, are narrowly
“ examined, they appear of a greenish
“ tinge.” And he has further observed,
“ that the colour of the face afterwards
“ becomes more darkish or livid, and that
“ the gums have an unusual livid appear-
“ ance.” DR. TROTTER also makes mention, “ that this change in the blood is
“ expressed, in the most *lively* manner, on
“ the cheeks and lips,” which is further supported by DR. GRAINGER’s denominating it of a *livid colour*. All LIND’s remarks seem to prove the altered texture and appearance of the blood ; and we have other convincing proofs of the same from ROUPPE, who has also written on this marine disease.

From

From all these authorities, as well as from his own observations, DR. TROTTER concludes, “ that the florid healthy colour
“ of the blood is changed in scurvy, to a
“ livid, darkish, and even a black shade.”

DR. TROTTER next proceeds to some observations on the difference in the colour of the venous and arterial blood, and takes notice, that physiologists have always described the venous as darkest. “ The
“ florid colour, says he, seems therefore
“ to be gradually changed and expended in
“ the course of circulation from the heart
“ to the extreme vessels on the surface of
“ the body. It is also found again restored
“ in the passage of the blood through the
“ lungs, by the action of something
“ which it receives from the atmosphere
“ during respiration.”

He has borrowed his proofs and explanation of this change from the experiments of DR. E. GOODWIN, who, it appears, first made them known in his inaugural dissertation at EDINBURGH; and afterwards
in

in an ENGLISH dress, under the title of
“ *The connection of life with respiration,*”
works I have not yet met with.

DR. E. GOODWIN, it appears, has had the same object in view, as DR. CRAWFORD, and has confirmed by his experiments the opinion of his predecessor on this subject; for as quoted by DR. TROTTER he has proved, “ that the blood receives its more
“ florid colour during the action of respi-
“ ration; and this he has ascribed to the
“ chemical effect of the pure part of the
“ atmospheric air, commonly called de-
“ phlogisticated air.” DR. TROTTER also observes, that some of what he has called DR. GOODWIN’s collateral experiments, justify the conclusion, “ that vital air, in
“ other situations, will change the dark
“ complexion of the blood to a florid
“ colour.” I am surprised he has not consulted DR. CRAWFORD on this subject.

DR. TROTTER has quoted verbatim the particular experiment made by DR. GOODWIN, proving this effect of dephlogisticated air on the venous blood, taken from the
jugular

jugular vein of a sheep: and from the particular manner in which it was made, a phænomenon attends it, which merits notice. Quicksilver was made use of in the experiment; the blood suddenly became florid; and a few minutes after, the quicksilver *ascended* two or three lines in the receiver. This *circumstance* seems, by the quotation, to be attributed to a small portion of air disappearing in the process; but it no doubt ought to have been attributed to the sensible heat, produced by the union of the phlogiston of the blood with the dephlogisticated air in the receiver,* and expanding the quicksilver.

DR. TROTTER therefore concludes, from these experiments, “ that the black colour
“ of the blood in scurvy is owing to the
“ abstraction of this principle (the dephlogisticated or vital air) by the remote
“ causes;” and he then proceeds to strengthen his opinion by shewing “ that vital
“ air is a component principle of fresh
“ vegetables, but particularly of those,
“ that are found most effectual for the
cure

* See page 62 of DR. GOODWIN'S work.

“cure of this disease,” and by investigating the principle, on which fresh esculent vegetables and acid fruits prevent and cure the disease, he hopes to throw very considerable light on the subject of the proximate cause of scurvy:

DR. TROTTER does not approve of DR. LIND's sentiments, respecting the effects and operation of recent vegetables, and is at a loss to understand how the antiscorbutic herbs are of use by promoting and increasing the secretions, “unless something noxious is to be eliminated from the body.” I believe it can be made hereafter to appear, that a something noxious is corrected in the habit, and afterwards expelled from it, by the very principle, on which DR. TROTTER has supposed recent vegetable matters to effect a cure. But their diuretic effects are to be considered as a secondary operation from them, by their having contributed to restore the necessary constitutional stimulus, which supports the tone and energy of all the motions and moving fibres of the system.

DR.

DR. TROTTER mentions the case of a lady he knew, who, from a severe dyspeptic state of the stomach, obliging her to live for weeks together solely on animal food, had many serious symptoms of the true scurvy, even to livid spots on her legs; she could not use vegetables, therefore DR. TROTTER concludes, that the antiscorbutic herbs cannot strengthen the tone of the stomach, or invigorate the organs of digestion; but when the indigestion wore off, this lady could take them. This case surely proves, that a debility of the digestive organs, even with a fresh animal diet, becomes a prædisposing cause to scurvy; how much more likely then is this to be the case, under the debilitating operation of so many noxious occurrences, in the seaman's way of life. We are left however by the author to conjecture, by what means the indigestion, and the symptoms of scurvy, in the above case, were removed, or in what space of time, or order, they disappeared.

In further confirmation of this new opinion of scurvy, DR. TROTTER has

remarked, in all the cases which he has attended, the longings and desires of the patient for acids; and has considered it as one of the strongest instincts in nature we are acquainted with. He has repeatedly observed the scorbutic slaves throw away the ripe guavas, and devour the green ones with eagerness. These extreme symptoms of corporeal distress could surely only attend the worst of cases. But certainly the same conclusion cannot be drawn, from the circumstance of a few raw sailors of the BERWICK, who were *only* tainted with the disease, receiving so much benefit from their visit to the ISLE OF WIGHT, to which place they were purposely sent for the benefit of *air* and *exercise*. These were the *antiscorbutics* which certainly relieved them, though it does not take from the application and intent of DR. TROTTER's remark, on the pretended skill of the old sailor who attended them, who on tasting selected only those berries and herbs, which possessed an acid quality.

To determine the principle on which recent vegetable matter proves of so much utility

utility in the prevention and cure of scurvy, DR. TROTTER next proceeds to investigate the nature of the citric acid, as abounding in the lemon.

It seems, that every substance termed *acid* is found to be composed of the acidifying principle, and a base peculiar to itself. This is said to constitute the difference of acids; each has its own radical; but what communicates acidity to the whole is vital air, or the dephlogisticated air of DR. PRIESTLEY. Modern chemists are of opinion, that vital air, or what is thought to be more properly called *oxygene*, is a component principle of the acid fruits, and DR. TROTTER has therefore concluded, that this is the quality which they restore to the human body, when labouring under scurvy.

He observes, that it has been already proved, that the blood in this disease is changed from a florid to a livid or black colour, and that, from DR. GOODWIN'S experiments, vital air is the principle in nature, which restores the florid colour to the vital fluid. From these premises it is

obvious, that the salutary effect of the citric acid is owing to this quality.

The sum therefore of the preceding facts and observations is, “ that the proximate
“ cause of scurvy is nothing else but a
“ something abstracted from the body, by
“ the remote causes, and from what has
“ been just delivered, that *something* is
“ pronounced by DR. TROTTER to be VI-
“ TAL AIR.”

The pneumato-physiological principle, by which this SOMETHING is restored to the constitution, is expressed by the author in the following passage: “ we are of opinion
“ that the citric acid is decomposed by the
“ organs of digestion and assimilation,
“ after which the oxygenous principle is
“ by chemical attraction blended with the
“ circulating mass.”

Here the author at last fails of investigating, in my opinion, the true nature of the disease. He is, as it appears to me, justified in thinking, that the citric acid cures by the dephlogisticated air in its composition ;

position ; but he falls short of establishing its *modus operandi* by a clear connection with the true pathology of the disease ; and from the acknowledged difficulty of the subject he has been compelled immediately to add, “ that what other changes the oxygenous principle may undergo, besides giving the blood a florid colour, he does not feel himself bound to explain.”

After having enumerated the astonishingly rapid and successful effects of the lemon juice in the worst of cases, DR. TROTTER has made the following observation, immediately upon having noticed the absorption of the effused blood in different parts of the body. “ This absorption, says he, bespeaks a degree of stimulus communicated to the lymphatic system, as well as to the sanguiferous, as soon as the blood has received a sufficient quantity of the vivifying principle.” Does not this language clearly convey the idea, that the citric acid ultimately acts on the motions and moving powers of the circulating system, in its progress of operating to restore the healthful condition of all the circulating fluids ?

In

In prosecuting the explanation of the action of the citric acid on the constitution, he attempts to do away the idea of its emaciating directly, by the operation of purging, on the following singular theory.

He thinks it is probable, “ that a proportion of undecomposed acid so affects the assimilation of the aliment, that it is taken unprepared into the blood vessels, peculiarly acts upon the fat, reduces it to a saponaceous state, and disposes it to run off by the excretions, thereby inducing a wasting of the fleshy parts, and adipose substance.”

He then starts a question, which the author thinks might be raised against his theory, why every acid is not equally effectual in the cure of scurvy, since they all possess this common principle, and many of them in a much greater degree than the lemon juice ? He flatters himself to do away the apparent objection completely, by the following statement.

It seems from the experiments of modern chemists, that the oxygenous principle bears different degrees of attraction to different substances, and to the radicals of the various acids. In a table proposed by MESSRS. LAVOSIER, DE FOURCROY, and others, 1787, are to be found those bodies, of which oxygene is a compound, arranged according to their degrees of elective attraction or affinity. At the top of this column is water; next follows nitrous acid, carbonic acid, sulphuric acid, &c. and not till after the tartarous acid, come the oxalic, gallic, citric, and malic acids: Thus it appears, that these latter acids are more easily decomposed by the powers of digestion, from their radicals and the oxygene being combined in weaker degrees of attraction, and therefore become more speedily anti-scorbutic.

He also thinks another objection might be urged, as remarked in the following quære. How happens it, that the acetous acid cannot cure the scurvy, since it has more oxygene in its composition, than the malic, citric, or oxalic acids? He answers

swers this objection by observing, that as the attraction between the radical and the oxygene of the acetous acid is more reciprocally proportioned to one another, it cannot so readily undergo a decomposition in the body, from their union being thereby the firmer, and therefore it only acts upon the fat, and is disposed to run off by the excretories. This opinion he thinks confirmed by the circumstance of the nitrous and sulphuric acids passing through the body pure, and unaltered, as when received into the stomach, in whatever manner exhibited, notwithstanding their acidity approaches to the highest degree.

He proceeds to the conclusion of his theory, with an eulogy on the importance of *pure vital air* to the animated, as well as the inanimate parts of nature, calling it the oxygenous principle, on which not only respiration, sanguification, and secretion, may have to depend for perfection, but as influencing and supporting combustion, vegetation, the calcination of metals, &c. in short asserting, that “ its influence is unbounded, and that the modifications

“fications of its agency are beyond calculation.”

Notwithstanding these extensive ideas of its universal operation, DR. TROTTER has very honourably acknowledged himself “at a loss to explain, the *ratio symptomatum* of scurvy, and in what manner a diseased state of the blood communicates its influence to the moving powers of the body,” although he has discovered, “that the cloat of blood, covering the ulcer in the inveterate stage of the distemper, is peculiar to the disease;” and “that the serous parts of the blood, by the application of any stimuli to the sore, shew not the least disposition to be converted into pus, as in other cases.” He has therefore said, “that scurvy is attended by a train of symptoms peculiar to itself, and which the genius of the distemper has rendered extremely difficult to explain.”

DR. TROTTER commences his observations on the prevention and cure of scurvy,

vy, by remarking, that the causes, why it still continues “ the scourge of long “ voyages and a sea life,” are in part irremediable, notwithstanding the wise regulations, which have been of late years adopted. He has considered the prevention of it so much connected with rules for the general health of seamen, that he has premised his particular treatment of the disease, with remarks, 1st,—on the method of recruiting our navy by the impress service, and on its inconveniences as prædisposing to scurvy: 2dly,—on the humidity of the atmosphere on board king’s ships, from various causes; and 3dly,—on the want of a due ventilation from various inattentions, and defect of discernment in that business.

He then properly observes, that the prevention of all diseases must depend upon a knowledge of the prædisposing and occasional causes: but though of this opinion, he has said, that all the prædisposing causes operating together cannot produce the disease SCURVY without the exciting causes. A diet of salted meat, or smoke dried

dried provisions, without fresh vegetables, have been generally looked on as the exciting causes : but DR. TROTTER has advanced it as his opinion, “ that a deficiency of
“ *recent* vegetable matter alone is the occa-
“ sional cause of scurvy.”

I think I have now properly prepared my reader, by the preceding facts and observations, from various writers on sea-scurvy, for receiving my opinion of the pathology and proximate cause of the disease. I have thought it of consequence to make them well acquainted with the various modern explanations of this *unique* disorder, as it is my opinion, that many of the land-diseases of the skin may be looked on as modifications of that virulent sporadic complaint, owing to the operation of the same remote causes acting on particular temperaments, and producing that variety of what are called scorbutic affections, either from the tardiness of their approach, or from a lesser number of them acting at the same time, independent of their being diurnally counteracted, as I have said before, by some

circumstances, in the mode of living on land, favourable to health. These reasons must render it useful to well understand the nature and treatment of SEA-SCURVY.

SECTION

SECTION IV.

THE PROXIMATE CAUSE OF SCURVY IS A CERTAIN MORBID STATE OR IMPAIRED ACTION OF THE INTESTINAL AND CUTANEOUS CAPILLARY VESSELS, OCCASIONED BY THE SEDATIVE EFFECTS OF A REDUNDANT QUANTITY OF PHLOGISTON IN THE PRIMÆ VIÆ AND HABIT, FROM THE NATURE OF THE DIET OF SEA-FARING PEOPLE.

SUPPORTED by the present improved state and promising prospect of the science of medicine, “ by the method of experiment “ and induction alone,”* I may venture to consider it as probable, that the HUMORAL PATHOLOGY cannot long stand its ground ; though while all our theories remain involved in great obscurity, and encompassed with numerous and encreasing diffi-

* CRAWFORD on animal heat.

difficulties, from the multiplication of the organic functions of an animal machine, THAT ONE will no doubt continue for some time the subject of dispute.

The principle for our future investigation of the diseases of the human body, as laid down by the experienced head and observing eye of CULLEN, in the preface to his first lines of the practice of physic, authorises me to attempt the following elucidation of scurvy. If I should fail of satisfying the well stored mind, such an intelligent reader will be readily disposed to attribute it to the difficulty of discriminating between the various motions and moving powers of the animal œconomy, as connected with the disease; but I am of opinion with DR. CULLEN, that though difficult it should be attempted, with the hope, that from the multitude of future observers on this *new* principle, it will at last perfect that “better train of investigation,” in which it was that celebrated professor’s opinion physicians have been of late years engaged.

In my early observations on scurvy, in the second section of the DERMATO-PATHOLOGIA, I said, “ that we should call
“ *that* the proximate cause, which imme-
“ diately brings about the morbid condi-
“ tion of the skin, and *that, I then supposed,*
“ would be found seated in the vessels of
“ the parts affected.”

That opinion is perfectly consonant with my present investigation of the subject, on the principle of its being caused by noxious alimentary ingesta, operating on the absorbing principle of the alimentary canal, and truly accords with there being but ONE SCURVY.

SCURVY is certainly a deranged state of the whole animal system, characterized more or less by the leading features of a diminution of the vital and muscular principles, and the marks of a putrescent state of the fluids, in the capillary vessels.

I am of opinion, that the animal œconomy is to be considered as an hydraulic machine, liable to a loss of balance in the
action

action of its different parts, from various causes, but still so possessed with inherent powers to carry forward the fluids to be circulated through it, and to be effused and secreted by it, that when deranged by any noxious matters acting on its living powers, the fluids must, of course, stagnate, and must, sooner or later, put on the appearance of what has been called a putrescent change.

The animal machine is moreover doubly complicated, in as far as it is every where endowed with active and moving powers to supply its deficiencies and evacuations; by an absorbing principle, and thus to instil, or take in, nutritious and vivifying particles, of various kinds, from the air and the aliment, by the two principal surfaces of the body, viz. internally, by the stomach and intestinal tube; and externally, by the pulmonary and cutaneous organs. We surely cannot deny *that principle* to the animal, *which* has been admitted to exist in the vegetable, kingdom.

Various causes connected with the atmosphere, appear capable of debilitating our animal machine ; but on no occasions so much, as when it is *first* deprived of a free ventilation of THE ATMOSPHERICAL AIR, from which it is to generate and absorb the due quantity of absolute heat ; and, *in the second* place, of a proper degree of CORPOREAL EXERCISE, by which the powers of all its various secreting organs and emunctories are promoted. Such external causes are of themselves sufficient, in my opinion, to derange the processes of chylication and sanguification ; but when to these are added the depressing power of MENTAL AFFLICTIONS, it cannot at all be wondered at, that so MANY REMOTE CAUSES *combined*, should so quickly affect digestion, and poison chylopoietic absorption. Such a combination would surely produce hurtful effects on the established idiosyncrasy between the PRIMÆ VIÆ and the TRUE SKIN, and clearly supported VAN SWIETEN in his opinion, that the exciting effects of indigestible matters in the stomach, aggravated the symptoms of the scurvy.

Still it appears, if full weight is to be given to the recent observations of DR. TROTTER, that ALL THESE injurious states and conditions of human existence, to which too many of our fellow creatures are exposed, are not of themselves ALONE SUFFICIENT to produce a true SEA-SCURVY, under the disadvantage of an unwholesome animal, and a debilitating farinaceous, diet, unless there be wanting, at the same time, a sufficient quantity of RECENT VEGETABLE matter.

Let THIS LAST be granted, and what are we then to conclude? We can only conclude, that SUCH A PART of a seaman's diet, corrects, agreeable to DR. TROTTER's opinion, *a certain state of the system*, brought on by the morbid action of the remote causes, and which state he has considered to be “ *an abstraction* of the “ VITAL, or dephlogisticated, AIR, from “ the blood ;” but *which* may be equally looked on, as owing to *adiminished generation* of IT, from a debility in the ordinary motions and moving powers, regulating and controuling ANIMAL HEAT.

What

What the particular tendency of *such a state* of the system is, I shall now attempt to elucidate, agreeable to my own reasoning on the pathology of the disease, as an impetiginous affection, and shall hope thereby to introduce my reader, to a nearer approximation to the true nature of a scorbutic disorder.

The subjects most commonly afflicted with all the variable degrees of sea-scurvy, are first gradually, though sometimes rapidly, debilitated in their system, by the operation of some one, if not more than one, of the remote causes of the disease; and, under this and other disadvantages, are obliged to live principally on a diet of salted meat, more or less tending to the putrescent state, either from age, or from other inattentions to it. Whenever I have had the opportunity of enquiring of the seaman, to what he and his messmates have been accustomed to attribute the disease on board of ship, they have all agreed in considering it, as the effects of living on salted or bad provisions.

Animal heat has been said to be promoted by a putrescent state of the fluids, either when local, or general. On this principle DR. CRAWFORD accounts for the greater degree of heat in putrid fevers, and topical inflammations: a dead animal substance, therefore, in a state of putrefaction, can be very readily admitted to be super-abundantly loaded with the phlogistic principle; and when such is received into the alimentary canal, under a debilitated condition of the system, it may undergo a very imperfect solution by the gastric and other digestive processes, whereby the nutritious particles, to be absorbed into the habit, may be rendered of a nature too phlogisticated, independent of the topical insalubrity of the phlogiston on the vascularity of the primæ viæ.

These perhaps local atonic effects, joined to the prædisposing debility of the system from the remote causes, may naturally occasion a want of that sufficient energy in the vessels of the intestinal canal, and chylopoietic viscera in general, to dephlogisticate all the inflammable air of such a
noxious

noxious aliment, and in this way may fail to produce the necessary quantity of absolute heat, to stimulate the system of the capillary vessels, as well as the circulation through the whole of the animal machine.

The sedative effects of this principle of inflammability, whether circulating in the fluids, or lodged in the primæ viæ, further aids the operation of the other remote causes, by weakening the action of the heart, and arterious system, either by a direct operation on them, or by impairing, or totally destroying, the established sympathy of action between the vessels of the intestinal canal, and those on the outward surface of the body; and a check is thereby given to the exhalation of the phlogiston by the extreme arterious vessels of the circulating system.

This capillary debility is probably attended with a diminution of the necessary separation of absolute heat from the atmospheric air. The occurrence of this diminution in the exhalation and effusion from the arterious system, must of course
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be attended with a diminished absorption of absolute heat, by the vessels of the lymphatic system, as well as in some places by absorbing veins, if the opinion I have endeavoured to establish, of an universal principle in the animal constitution to generate heat, be well founded. This heat on the surface of the PRIMÆ VIÆ, as well as on those of the lungs and skin, proves a stimulus to the action of all the absorbing vessels, whereby the animal machine is duly supplied with its *pabulum vitæ*, its universal vivifying power.

Most of the preceding facts and observations from writers on the scurvy, accord in the support of this pathology, which seems to me well suited to explain the various phænomena of the disease, and in a very evident manner accounts for those particular symptoms, mentioned by DR. TROTTER, at its approach and commencement, viz. “ the universal pains of the
 “ body, especially of the shin bones; and
 “ the roughness, and dryness of the skin,
 “ with its sense of feeling the external
 “ air colder than usual.”

Let

Let us now see if the therapeutic treatment, from which DR. TROTTER has drawn his proximate cause, is consonant with the above pathology : that is to say ; does the *modus operandi* of the citric acid accord with such an explanation ? In my opinion, it does particularly well.

The ordinary difference of colour between VENOUS and ARTERIAL BLOOD has been clearly proved by DR. CRAWFORD's experiments to depend upon PHLOGISTON, and ABSOLUTE HEAT. It is further made to appear by DR. TROTTER, supported by the experiments of DR. GOODWIN, that the DARKER COLOUR of scorbutic blood is occasioned by a redundant quantity of the INFLAMMABLE PRINCIPLE in it, and that VITAL, or dephlogisticated, AIR, is capable of again restoring it to its FLORID STATE. It has also been further proved, " on the induction of pneumatic chemistry," that the CITRIC ACID contains this air in large quantity ; that it is easily decomposed from its RADICAL ; and that it,

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in some way or other, speedily acts upon, or is taken up into, the HABIT, so as to have a very rapid effect in healing the SCORBUTIC ULCER, covered with its effused CLOAT OF BLOOD.

On these DATA, I shall presume to say, that the remarkable salutary effects of the *juice of the lemon*, in the cure of *sea-scurvy*, is owing to its *destroying* the redundant *phlogiston* injuring the functions of the chylopoietic viscera, and to its property in *restoring* a proper quantity of *absolute heat* to the system, as the *vivifying principle* exciting the motions and moving powers of the MUSCULAR FIBRE.

The proximate cause therefore, as connected with the ONLY occasional cause assigned by DR. TROTTER, to wit, A DEFICIENCY OF RECENT VEGETABLE MATTER, justly appears to me to be no more than the THERAPEUTIC PRINCIPLE, by which the true immediate cause of all the phænomena of scurvy is removed; to wit, a præternaturally phlogisticated state of the blood, caused by the sedative effects of a sea-faring life,

life, and a putrescent diet, on the capillary vessels of the intestinal canal, affecting thereby, from established balance, all the capillary vessels on the external surface of the body.

This reasoning is quite consonant with its having been considered by DR. CULLEN, and other writers, as a proper impetiginous affection: for the phænomena, establishing a clear deviation from the true standard of a healthy circulation, are all noticed as occurring on the outward surface of the body, either as efflorescencies or hæmorrhages. Why such do not as readily occur on, and from, the lungs, may, on the above principles, be easily accounted for.

I may, therefore, fairly conclude, that a diminution of the vital power, by the various remote causes, becomes the original prædisposing general cause of scurvy, and that a *certain* morbid state, or impaired action of the system of internal and external capillary vessels, caused by the sedative effects of the redundant phlogiston in the primæ viæ and habit, is the PROXIMATE CAUSE.

SECTION V.

THE PROPHYLACTIC, AND CURATIVE, TREATMENT OF SCURVY ARE TO BE FOUNDED ON THE PRINCIPLE OF PREVENTING, AND REMOVING, THE PRÆTERNATURAL ACCUMULATION OF PHLOGISTON IN THE PRIMÆ VIÆ AND HABIT.

BEFORE I enter upon some considerations on the concluding objects of the present enquiry, viz. the prophylactic and curative indications of the disease, I shall premise the following physiological opinions, as the ground on which the treatment in view is built.

EXHALATION, EFFUSION, and ABSORPTION, are to be looked on as processes in the animal machine, so dependent on the tone and muscular energy inherently attached to the system of capillary vessels, that their salutary completion, and good effects,

effects, must depend upon the due circulation of the animal fluids through the said vessels, and which, therefore become liable to be deranged by any cause diminishing their natural powers, or occasioning an inordinate state of action in them. Such a deviation from their ordinary healthful operation, may be the effect of a redundant quantity of phlogiston in the primæ viæ, by the exciting cause of scurvy.

The human skin, as an emunctory of the body for the discharge of the superabundant phlogiston, must necessarily be affected in scurvy, by such an intestinal condition, as the sea-faring diet occasions, especially when it is reflected on, that its inherent sympathy with the *first passages* may be particularly called up, on the occurrence of any noxious ingesta *there* received, if such ingesta have a sedative effect on the vascularity of the stomach and intestines.

These vascular organic processes have indubitably a connection with the doctrine of an ARTERIO-MUSCULAR PATHOLOGY,

originally spoken of,* from the striking evidence of all the capillary vessels being endowed with an extraordinary proportion of the living or moving principle ; and without carrying with them too much the appearance of depending on a *vis conservatrix naturæ*, are consonant with the original opinion I sat out with, that the scurvy probably arose from a morbid action and condition of the motions and moving powers of the parts concerned.

Are there any phænomena of disease common to human nature, that will justify the opinion, that a MUSCULAR PATHOLOGY can be rationally established as a more probable and leading principle, than that of any of the former systems of medicine, as founded either on the supposed chemical changes of the circulating fluids, or the influence of the sensorium and nervous system ? The few following circumstances appear to me to afford just argument for the preference and support of SUCH A PATHOLOGY, as governing vascular and sympathetic affections.

Let

* At page 1 of the introduction.

Let it be remembered, that the diseases to which the natural constitution of man is inherently entitled, and with which, at some time or other, it has to contend, and seldom escapes, from some established law in the animal œconomy, are of the exanthematous, or eruptive, kind. Moreover, they are diseases, to which mankind are not, generally speaking, a second time subject; are also particularly connected with, and influenced by, the atmospheric air; and therefore particularly affect the system of capillary vessels. Such are the SMALL POX;—CHICKEN POX;—MEASLES;—MILIARY, and SCARLET FEVERS, &c. of DR. CULLEN'S order, EXANTHEMATA, which he has thus characterized:

“ Morbi contagiosi, semel tantum in de-
 “ cursu vitæ aliquem afficientes; cum
 “ febre incipientes; definito tempore
 “ apparent phlogoses, sæpe plures,
 “ exiguæ per cutem sparsæ.”

ORD: III. OF CL: PYREXIÆ.

Even the PERTUSSIS, which affects mankind but once in the course of life,
 may

may be considered as a disease of the pulmonary capillary vessels, and even of an external surface of the body, from their being similarly connected with the atmospheric air.

No part of the human body, but the external surface, is instinctively secured against the return of any specific genus of disease, after the constitution has once contended with it. All internal affections of the visceral organs, and even of the brain itself, from being unconnected with the atmosphere, may be occasionally repeated by the irregularities of our mode of living; and are idiopathic local diseases, with which the whole capillary system may, by some degree of pyrexia, sympathise.

These singularly established pathological phænomena, connected with the circulation of all the external capillary vessels, as well as with their sympathy with internal diseases, give a decided SUPERIORITY OF CONSEQUENCE to those important minute parts of our animal machine, over the hitherto leading doctrines of the influence of the
SENSO-

SENSORIUM and NERVOUS SYSTEM, in the production of most pyrexial diseases; and which superiority is strengthened and confirmed by its being an indubitable fact, that THE LATTER are not exposed by nature to any specific diseases, but what may repeatedly afflict us through life, from perhaps our own indiscretions, when we except the CHOREA, as truly involuntary, at an early part of life, and the PERTUSSIS, in DR. CULLEN'S class NEUROSES, if the last disease can be considered as properly a nervous and chronic affection. These leading, and characteristically distinct, features of the vascular and nervous diseases, must be brought about by some fixed principle in the government of the *autocrateia*, and by the will of a SUPREME BEING.

An *arterio-muscular irritability*, as the striking feature of health and disease in the animal body, will account for an opinion, of late advanced in physiology, and which there have not been wanting instances to support; viz: that the human constitution cannot conduct or manage two specific diseases at one and the same time. Thus the eruptions

eruptions of the small pox and measles cannot happen together, though the habit may have received the contagion of each, nearly at the same time ; but the one most forward in the system will proceed to its completion, and for a while delay the appearance of the other. In like manner have the measles and the scarlatina been known to interfere with one another.

These occurrences serve to point out to us the weight and importance of the capillary circulation, in the progress of our diseases, as well as in the government of our health ; and will, I think, insensibly lead us to a very different view of the whole animal œconomy, than is entertained and inculcated by the physiologists and pathologists of the present day.

I shall now proceed to my observations, *first*, on the means of counteracting the effects of a sea-faring diet.

DR. TROTTER seems *at the last* to admit, that the injurious quality of the
sea

sea diet renders it an object to increase the vegetable part of it, and to afford it, as much as circumstances will permit, in the recent state.

The means at present of preventing the scurvy on board the BRITISH NAVY rest on the proper supply of sour kroust, elixir of vitriol, infusion of malt, and essence of wort. On each of these DR. TROTTER has made a few observations.

Sour kroust is yellow cabbage cut in the month of NOVEMBER, and preserved with salt, well pressed together, in casks. When used it is commonly washed, yet it has been sometimes used unwashed; but without being washed, it is very disagreeable in flavour, and extremely putrid. DR. TROTTER is of opinion, “that its
“virtues, as an antiscorbutic, both from
“reasoning and experience, are very trifling, and not worth the expence
“which it has cost government.” How should it be otherwise, if it is used putrid?

The *elixir of vitriol* is also not well spoken of. DR. TROTTER assigns the following reason for its inutility. “ The
“ sulphur,” says he, “ which is the base
“ of this acid, has so strong an attrac-
“ tion for the oxygene, that it is inca-
“ pable of being acted upon, by the
“ powers of digestion and assimilation,
“ or converted into animal fluids; hence
“ it passes, unchanged, through the body,
“ without exerting any effects on the
“ blood.”

I believe the principle of this explanation is good; and this prophylactic, therefore, fails of answering at sea, because the primary cause of sea-scurvy is seated principally in the intestinal canal, where the noxious state is first and chiefly to be corrected. When scorbutic appearances depend, principally, on a general debility, impairing the healthful action of the capillary vessels, I have always found vitriolic remedies of use, even absorbed from the *primæ viæ*, because they remain unchanged, when thus
carried

carried to the cutaneous surface, and then act by tonic powers.

The *infusion of malt*, and the *essence of wort* were introduced, as anti-scorbutics on board his majesty's ships, on the principle of their supplying fixed air to the blood, from its having been supposed, that the absence of it caused the putrefaction of animal fluids. Their utility is very strongly questioned by DR. TROTTER, though they have been, from some trials, favourably recommended, and, therefore, at the present day they form a part of naval victualling.

In my opinion, if they have been found of service, their antiscorbutic effects must have been brought about by some specific operation on the putrefactive fermentation of the marine alimentary ingesta, and not by adding, but by, in some manner, preventing the addition of *fixed air* to the circulating blood, and that probably from the action of the VITAL AIR, in their composition, on the redundant PHLOGISTON of the PRIMÆVIÆ.

I am, therefore, much inclined to believe, that their *fancied* good effects may have been occasioned by ITS stimulant qualities on the intestinal capillary vessels, either in its own *pure* form, or in the form of fixed air; for a particular modification of the fermenting chemical process, from a mixture of these various principles *within* the human body, most likely takes place, and differs probably from any imitation of the digestive and assimilating processes, which human ingenuity may have contrived, in inanimate vessels *without* the body, and under the influence of the atmospherical air.

But from among all the preventatives of scurvy, no one, in my opinion, can stand in competition with the prophylactic utility of PURE WATER. Its great proportion of dephlogisticated, or vital, air, serves to guard against a redundant quantity of alimentary *phlogiston*, while, as a solvent, it is well suited to carry off, by the emunctories of the body, the marine salt of the sea-faring provisions. On the contrary, when PUTRID, it possesses

possesses all the baneful qualities of *putrid animal matter*; on which account DR. TROTTER has observed, “ that *putrid* “ *water* has been always reckoned among “ the causes of that disease,” the proximate cause of which he has considered, as solely occasioned by a deficiency of RECENT VEGETABLES.

The marine improvements, for the preservation and acquisition of PURE WATER at sea, are very considerable indeed; and there is no one discovery of greater weight and importance, than that of PUTRID WATER being again rendered sweet, by agitation, and exposure to the atmospheric air. Surely THIS FACT will support, by analogy, the opinion, that the fluids of the living human body may equally tend to the putrescent state, from the want of due atmospheric ventilation, and corporeal exercise: but they are soon clearly rendered so, by the compulsive use of an improper animal diet, under the evident disadvantages of such a temporary existence, by its rapidly increasing
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the *phlogistic state* of the system, and the diminution of the VITAL POWERS.

DR. TROTTER has followed his observations on the prophylactic part of a sea *regimen*, with some remarks on the provisions in general, and has proposed some alterations. No one can, for a certainty, read this part of DR. TROTTER'S work, without being strongly convinced, notwithstanding he has well supported his own particular opinion, respecting the effects of a *deficiency of recent vegetable matter*, but that it had appeared evident to him, that a diet of salted provisions, and therefore, in a greater or lesser degree, tending to the putrescent state, was the principal exciting cause of scurvy. He therefore is an advocate for a greater quantity of vegetables in the soups, even made of fresh beef, as the best means to recruit a sickly crew: and says, "That it is to be much wished, " that the practice was general, to diminish the allowance of salted meat, and " increase the other articles of diet." He highly recommends the introduction of *cocoa* and *sugar* for breakfast, in the
room

room of *oatmeal*, *butter*, and *cheese*, three articles, which, he says, are very liable to spoil in hot countries.

A *stronger beer* than is commonly used, has also been recommended, from political as well as salutary motives, as preferable to *porter*, of which last DR. BLANE has given full evidence, that it possesses antiscorbutic qualities. Diluted *spirits*, as *grog*, are said to be an unsalutary marine substitute for *wine* or *beer*, as having a tendency to exhaust and debilitate the constitution. As correctors of the salted provisions, and the best condiment for animal food, TROTTER recommends the common pickles of *red cabbages*, *cucumbers*, *kidney beans*, *onions*, &c. as far preferable to the stinking preparation of *yellow cabbage*, at present in use. It is further observed, that SAILORS recovering from fevers, or other diseases, ought not to live on the *common fare* of a ship, till tolerably recruited by the ordinary means, suited to the convalescent state.

The next observations particularly respect the cure of the disease.

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DR. TROTTER'S experience, as well as the opinions of authors on the subject, have taught him to believe, " that fresh " esculent vegetables, of all kinds, will " cure sea-scurvy ;" and most effectually the citric class of fruit, as abounding with an acid. It is interesting to observe, " that the unripe gooseberry, from hav- " ing the citric and oxalic acids combined " in its juice, has been found equally as " effectual as the lemon." And it has been further observed, " that apples, just " before they are ripe, have been suffi- " ciently proved to be very valuable " antiscorbutics."

A spare allowance of ship provisions, joined to cold and moisture, were the remote and exciting causes of the scurvy among the *Irish convicts*, as related by DR. TROTTER, and his treatment of them, by the free use of lemons and oranges, in proportion to the virulence of each case, had the happiest effects in restoring them, in a short time, to a free use of their limbs ; and to the full enjoyment of their perfect health and spirits.—

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These circumstances strongly prove to me, that the citric acid cures, by first destroying, chemically, the principle of inflammability in the scorbutic habit; and in then restoring the due quantity of animal heat, for the promotion of the circulation, and all the moving powers of the system.

It has been supposed, that the rigidity of the muscles of the limbs, in extreme cases of scurvy, was occasioned by coagulated blood, effused into their interstices, and into the cells of the *membrana cellulosa*.

DR. TROTTER accounts for these symptoms thus: “ These conditions of the
“ muscular fibre are, certainly, much better
“ explained from the diminished nervous
“ energy: it is this torpor of the *vis vitæ*,
“ which produces the *hebetudo animi*, and
“ renders the mind, as well as the body,
“ so little disposed to be affected by the
“ usual stimuli; and is a state of the

“ nervous influence, more peculiar to
“ scurvy, than to any other disease.”

I shall here throw it out as my opinion, that the above phænomena prove, that the tone and energy of muscular fibre depend on animal heat, or a due proportion of the vital air in the system, by which it is generated. This is rendered the more probable, as, from recent discoveries, by some new experiments on frogs, it has been made to appear, that the *nervous influence* may depend on an *electric principle*; and surely *this last* must have a natural connexion with *vital air*, and the *absolute fire* of the atmosphere, and with the universal corporeal process generating ANIMAL HEAT.

It appears to have been some time a *desideratum* in long sea voyages, to preserve well the citric acid. An extract of it has not answered. It has been found a much better way to cork it up, fresh squeezed, and not strained, in bottles; but DR. TROTTER recommends the fruit
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to be preserved in tight casks, and says, "that this method will answer for the longest cruise, and is the surest way of securing the virtues of the citric acid." A method is taken notice of by DR. TROTTER, of concentrating it by congelation, by which it is reduced to about one eighth part of its original bulk. It does not appear to have been yet tried at sea, but he is of opinion, that such a preparation merits the patronage of the national government.

Lemon juice has been applied successfully to the scorbutic ulcer, in the form of poultice. DR. TROTTER seems to speak lightly of this practice, but still admits, that it may have done good, because he has witnessed such rapid effects from it, in such affections, when taken internally.

From the description, and directions, given by DR. TROTTER, in respect to the return of a ship to port, with a number of scorbutics, it no way astonishes me,

that such numbers, on some occasions, should perish by this loathsome disease. If the reader will turn to page 227 of his last work, he will find, that the circumstances attending the arrival of the **BERWICK** in **ENGLAND**, after the hurricane in **OCTOBER 1780**, will sufficiently prove to him, that the ravages of the disease, on board a ship, must be very much occasioned by the confinement of the seamen, and by the want of a free atmospheric ventilation. As a proof of this, **DR. TROTTER** advises, “that these unfortunate
“men be recruited on board, by refresh-
“ments from shore,” before they are moved, “that they may be sent to an
“hospital *without danger of expiring, when*
“*they come to feel the* **EXTERNAL AIR**.” Surely this is good evidence of the principle, on which I have wished to establish the pathology, and proximate cause, of the disease.

In relating the distress of the **BERWICK**, **DR. TROTTER** has mentioned a *curious* circumstance. During the hurricane the
crew

crew were very healthy ; SHE had then only two sick on board ; one of them a sailor, who had been tapped some time before for the dropfy ; and the other the captain's fervant, confined with the flux. Soon after the hurricane, from the fatigue, &c. which the men underwent, the flux and scurvy made their appearance among the crew. The above sailor who was emaciated almost to skin and bones, though sleeping among the rest of the sick, yet escaped both diseases, and recovered perfect health afterwards at the hospital. This fact proves, either that the disease *scurvy* is owing to a specific state and condition of the system, connected with the aerial and corporeal generation of absolute heat and phlogiston, or that the human constitution cannot labour under two different specific disorders, at one and the same time.

DR. TROTTER has made some observations ON EXTRACTS from DR. BACKERACHT'S *practical dissertation on the scurvy, for the use of the surgeons in the Russian army*

*army and navy.** THEY only afford further proof to me, that the disease prevails in all countries, from the same general predisposing and occasional causes; and that there is but one PROXIMATE CAUSE for it, in every marine and in-land situation in the world, principally excited by the bad condition of some one part of the provisions.

The effect of an *earth bath*, in the cure of the disease, and the relief afforded to the sailors in ADMIRAL HOWE'S fleet, by the custom of *burying their limbs* in warm sand on the shore, have certainly a connection with the pathology and proximate cause, which I have been endeavouring to establish.

DR. TROTTER'S concluding observations on the scurvy, as occurring on board the ships in the SLAVE TRADE, and the means he has proposed for preventing it, by attention to *air, exercise, and diet, &c.* further

* REVAL, 1787.

ther supports my opinion of the noxious tendency of being at any time deprived of *corporeal exertions*, and free *respiratory ventilation*, in the open atmosphere; and that *recent vegetables* do good only on a *therapeutic principle*, by counteracting the baneful effects of *inactivity* and *confinement*, particularly when so many of our fellow creatures are *closely* immured together, for any length of time, in the same place.

He has had reason to remark, that the smaller the *slave ship* on the GUINEA COAST is, the better for the owner, because it sets sail the sooner; and those unfortunate human objects of private traffic are thereby “less endangered in their health, from confinement in the ship, or lying along the coast.” No wonder that such a human revolution in the extreme, namely, from free liberty in the open air, to slavery and imprisonment on board of ship, should be attended with the depressing influence of mental affliction, and be rapidly followed by corporeal disease.

Let

Let all the circumstances, preceding and accompanying the slave and seaman's miserable and unhealthy lot, be well weighed, as connected with the various functions of the animal œconomy, and I am certain, that the reflecting and feeling mind will be too bitterly, and too clearly, convinced, that the ordinary, occasional, and exciting causes of sea-scurvy are sufficiently well known, yet not enough guarded against; that their *modus operandi* is easily explained; and that the *deficiency of recent vegetable matter* is no more than the wanting a sufficient supply of *the best means* for its prevention and cure, *which* have only a temporary, or palliative, effect, if the remote causes to any degree continue to act.

AS DR. TROTTER still continues to be SURGEON on board his majesty's ship, THE DUKE, I think we have reason to expect some further interesting observations on this subject; from the advantages of his systematic education. I hope he will be inclined to think it worth his while

while, to make trial of the prophylactic and curative effects of the OAK BARK, which will be recommended as a *marine antiscorbutic* in the next section. No man can be better prepared for judging of its effects, from his having paid such particular attention to the *phænomena* of *sea-scurvy*, as connected with PNEUMATIC CHEMISTRY.

SECTION VI.

THE CORTEX QUERCUS, OR OAK BARK, IS RECOMMENDED AS POSSESSING PROPERTIES, WHICH MAY RENDER IT A MORE USEFUL MARINE-ANTISCORBUTIC, THAN ANY AT PRESENT MADE USE OF IN THE BRITISH NAVY.

FEELING, myself, very much, the importance of discovering the true nature and origin of sea scurvy, in as far as it may lead to a more perfect knowledge of many of the impetiginous diseases, which afflict mankind so universally, I have insensibly fallen into the error of being, perhaps, unnecessarily full on the subject, as I have certainly gone a much greater length, than at the first I had any intention, or inclination, to do. But as it has further led me to propose a new
naval

naval antiscorbutic, I hope the candid reader will have the goodness, without censuring me, to go through the following short section, as the summary, and I hope not altogether useless consequence, of the preceding reflections. It appears to me an interesting object for future investigation and experiment, and I seriously recommend it to the notice of the navy-surgeon.

I have been gradually led on in my enquiry into the present state of this part of naval practice, and have taken advantage of the many facts, which have been collected by the persevering industry of DR. TROTTER, and other writers, on the subject, with the view of offering “that assistance from medicine,” to the relief and cure of sea-scurvy, “which has only hitherto been *effectually* found from recent vegetable matter.” To this I have all along had an eye, in my full investigation of the disorder.

It appears by the practical observations of OUR LATEST WRITER on the subject, and of one too, who seems to have had

very extensive opportunities, for some years past, of making them, that the ordinary means of prevention on board the BRITISH NAVY are more or less objectionable. *Sour krout*, the *elixir of vitriol*, the *infusion of malt*, and the *essence of wort*, have each their particular imperfections. The *water* also is too often what it ought not to be, to wit, *bad*; and the seaman's *provisions* must probably ever remain what they are. *Wine*, as was before observed, will not prevent this singular disease, much less remove it; and “ the celebrated *peruvian bark*, given to “ the utmost extent, has never been known “ to check its progress, or cure it.”

Under the preceding naval difficulties, and deficiencies, in the medical department of sea-practice, I have to hope, that any proposal, which carries with it a reasonable appearance of promising to discover an useful marine antiscorbutic, will at least be thought praise worthy, and call upon the attention of those practitioners, so immediately concerned in its success:

I therefore

I therefore propose to the lords of the admiralty of the BRITISH dominions, that the *cortex quercûs*, or OAK BARK, be allowed to have a fair trial, as an antiscorbutic, under the skillful and experienced direction of its naval practitioners. I have just reason to think, that it will be an advantageous substitute for the hitherto tried articles of the MATERIA MEDICA, which seem not to have answered, to wit, the ELIXIR OF VITRIOL and the PERUVIAN BARK.

I have been long well acquainted with its medical virtues, in the treatment of numerous cutaneous diseases, which I have had much reason to consider as *terrestrial* modifications of the sea-scurvy, and have also very generally made use of it successfully, as an astringent antiseptic, in low fevers, and those tending, from long continuance, to a putrescent change: and I have thought that its good effects were to be attributed to a property it possessed, of counteracting and destroying the tendency, and existence, of a præternatural degree of the phlogisticated state of the system.

It

It may be thought necessary, that I should refer to some authorities, for the opinion I entertain of its medical principles and virtues; I hope, that the reader will rest satisfied, on the present occasion, with three, so as to induce him, if in naval practice, to second me in my wish, that it meet with the trial, as above recommended.

The OAK, from its antiquity, as well as its celebrity and public utility, in various concerns of life, claims our respect and attention. Many of its ancient virtues and qualities have been recorded by IO: DU CHOUL, G. F. in a tract in my possession, entitled, “*De varia quercus historia. Accessit pylati montis descriptio.*”* From its wonderful amplitude and growth, this writer has observed, that the ancients drew a comparison between it, and the violent symptoms of an intermittent, “unde
“*febrem frigidam cum tremore querqueram*
“*nominabant:*” and quotes LUCILLIUS,
“*Querquera*

* Sm: oct: Lugduni impr: 1555.

“ *Querquera consequitur febris capitisque*
“ *dolores.*”

This ancient writer has not entirely overlooked its medical properties, having said,
“ *Quercus partes omnes adstringentis qualitatis participes sunt. Querneus carbo cum melle tritus carbunculum genus morbi sanat.*
“ *Cinerem quercus nitrosum esse satis constat.*” Such observations are applicable to *scorbutus*, as an impetiginous disease.

It will, however, be probably more satisfactory to my reader, to know the opinion of a modern writer.

DR. CULLEN has said of the OAK BARK,
“ that it is considered as the most powerful of the vegetable astringents; and
“ its universal use and preference in the
“ tanning of leather renders the opinion
“ very probable. Accordingly it has been
“ much employed as an astringent medicine, and commended for every virtue,
“ that has been ascribed to astringents,
“ either

“ either internally, or externally, employed.”*

DR. CULLEN used the decoction of it as an astringent gargle, and speaks very favourably of it. I can myself say, that I have had great experience of it, in various diseases of the mouth and fauces, accompanied sometimes with fever, and sometimes not; and have found it a very useful medicine, on all occasions, when I could not have used the PERUVIAN bark without injury to the constitution. It would, therefore, well supply the place of the marine gargle of the elixir of vitriol, which has been called “ a mere placebo.”

DR. CULLEN has further observed,
“ that he employed oak bark in powder,
“ giving it to the quantity of half a
“ drachm every two or three hours during
“ the intermissions of a fever; and
“ both by itself, and joined with camomile
“ flowers, has prevented the return
“ of the paroxysms of intermittents,”
and

and concludes with saying, “ that all its
“ virtues, in a considerable degree, are
“ found to belong to the *cupulæ* or scaly
“ cups, which embrace the bottom of
“ the acorns.”* Perhaps the preservation
of *leather*, from the process of tanning,
may as much depend upon its *antiseptic*,
as its astringent, qualities. DR. CULLEN
has not in the most distant way hinted
at its having any antiseptic properties : and
has also spoken of its *gallæ*, as solely as-
tringent.

This medicine may surely, as above
spoken of by DR. CULLEN, be fairly en-
titled to the proposed trial, as a substitute
for the PERUVIAN bark at sea : but as it
further appears to me to possess properties
peculiar to itself, without the injurious
qualities of the other, I flatter myself,
that it will meet with its due attention.
This will appear more evident by the next
observation, on the authority of the BISHOP
OF LLANDAFF.

3 C

It

* TREATISE OF THE MATERIA MEDICA, 1739.

It has been proved by experiments,
 “ that the *fixed* matters in wood are com-
 “ bined with a large proportion of vola-
 “ tile principles, consisting chiefly of pure,
 “ or of fixed, air and water.” Such vo-
 latile parts in the wood of the oak bear
 a very singular *superiority of proportion* over
 its other *fixed* parts; so much so as to
 have claimed the notice of DR. CRAWFORD,
 to prove a proposition in his pneumatic
 doctrine. He has the following passage
 in his essay on animal heat and combustion.

“ Thus it appears, from the experi-
 “ ments of the learned and ingenious
 “ BISHOP OF LLANDAFF, that pit-coal
 “ contains one third of its weight of
 “ aerial and liquid matters, which may
 “ be separated by distillation; that *dry*
 “ *heart of oak* and *fallow (i. e. willow)*
 “ *lose more than two thirds* of their weight
 “ in the same process; and that, from 106
 “ POUNDS avoirdupoise weight of *dry peeled*
 “ *oak, only 19 OUNCES of ashes* were ob-
 “ tained. It is probable, that a much
 “ smaller quantity would be produced by
 “ the

“ the combustion of an equal weight of
“ green oak.”*

The great VOLATILITY of the OAK BARK being thus proved by the observations of one of the first chemical philosophers of the present day, accounts to me for the great utility of it, as an ASTRINGENT, TONIC, and ANTISEPTIC; as I imagine, that it is capable of imparting to the human body a greater proportion of the *pure aerial*, or *vivifying*, *principle*, than any other known article of the *materia medica*, hitherto employed as an antiscorbutic; and, from soon finding it possessed of these properties, I have for some years past very generally used it myself in impetiginous, and slightly febrile, affections; and now venture *warmly* to recommend it to the notice of the NAVY SURGEON, as promising to become also a very useful MARINE ANTISCORBUTIC. Its cheapness will certainly be an additional recommendation of it, where expence ought reasonably to be avoided.

3 C 2

With

With respect to the best mode of administering it at sea, I can say but little to a naval practitioner, having never been myself acquainted with the conveniencies, or inconveniencies, of such a situation. A strong decoction, particularly with dried orange peel, is not an unpleasant *formula*; perhaps the dried lemon peel on board of ship would be preferred. I have generally made use of the following preparation of it in private practice, in various composition with other medicines, according to the particular circumstances of the case, and the constitutional temperament of the patient.

R corticis quercûs pulv: crass. \mathfrak{z} iss

—————aurant: sic: \mathfrak{z} ij

Contunde simul paulo tempore, et adde
aquæ ebullientis \mathfrak{l} biv.

Dein leni igne coque ad \mathfrak{z} xx et cola.
Cochlearia quatuor ampla dose, bis, ter,
quaterve, de die, pro re nata.

I have sometimes added a drachm of the *winter's bark*, with the sole view of rendering the decoction more gratefully aromatic.

aromatic. For the difference between the *cortex winteranus*, and *canella alba*, I shall refer the reader to CULLEN'S MATERIA MEDICA, and the LONDON MED: OBS: Though it has been spoken of as a preservative against the scurvy, I have had no reason to think, that it has added in the least to the antiscorbutic virtues of the above decoction.

I have also experienced a decoction of it with *liquorice root*, and sometimes with *orange peel*, very serviceable in *infantile diseases* of various kinds, particularly in their *strumous* and *glandular diseases*, accompanied with the febrile irritability; joining with the decoction the occasional use of *calomel* aperients, and an attention to regimen and diet.

It may be found most convenient at sea to make trial of it in powder: but as it has been troublesome and difficult, to reduce it to a very fine one, I have not much used it in that form; especially as I think its properties are more likely to be found medicinally useful in the form
of

of a decoction. If I had naval opportunities, I should try it in many different ways, both as a prophylactic, and a therapeutic, medicine; but the best method will most likely occur to the NAVAL PRACTITIONER.

I have never read, or heard, of an *extract* of the oak bark having been prepared; in my opinion it would be trifling, and not contain the principle on which the beneficial effects of the wood depend.

CON-

CONCLUDING SECTION.

CONTAINING THE BRIEVIARY OF THOSE OBJECTS, TO WHICH THE AUTHOR PROPOSES GIVING HIS ATTENTION, WITH A VIEW TO ANOTHER WORK, RECOMMENDING THE CLASSIFICATION AND FORMULÆ FOR A NEW IMPETIGINOUS PRACTICE, UNDER THE PARTICULAR HEAD OF DERMATO-THERAPEIA.

NOTWITHSTANDING that I am most readily inclined to admit, that all I have hitherto advanced, forms but an imperfect BODY OF PHYSIC, when all the numerous classes of diseases are comprehended in the physician's view of the known physiology and pathology of the ANIMAL MACHINE, yet I cannot but think, that there is already as much discovered and promulgated, on the subject of
animal

animal heat, with the view of investigating the particular process of it in the HUMAN ŒCONOMY, as will stir up an enquiry into the probable influence it may have upon many various, if not all the, diseased states of the system; but in a particular manner, if *my opinion* of its originating from a supposed chemical process on the outward surface of the human body, by *insensible perspiration*, as well as on the surface of the lungs, as DR. CRAWFORD has supposed, by RESPIRATION, be well founded; it at least merits further investigation, from the cutaneous organ being constantly exposed to the action of the atmospherical air.

i: With the hope to explain many other phænomena both of health and disease, in the animal Œconomy, I shall probably prosecute such investigation, when I come more particularly to consider the MATERIE MEDENDI of all cutaneous diseases. With this view I shall fully enquire into the comparative anatomy and physiology of the vegetable kingdom, which may further account, why a vegetable diet may on
many

many occasions become salutary, and heal our diseases, by its regulating and controuling the chemical process obtaining animal heat, in as far as it may, in some situations on land, be connected with our aliment.

2. It will be also worth while more particularly to enquire into the nature of FEVER, with the object of ascertaining, whether the disturbed and deranged process obtaining animal heat may not be the source of fevers of every kind, according to the action of the remote cause, and the nature of the constitutional temperament, and perhaps explain better than has been hitherto done, the phænomena of the cold, hot, and sweating stages of an intermittent:

3. The better to support the opinion of a cutaneous generation of animal heat, I think there is an opening to draw an analogy between the papillæ pyramidales of the cutis vera, and the cells or cellular surface of the pulmonary organs.

As I may not, however, find leisure sufficient to do justice to the three preceding objects, and have not any immediate intention of doing so, they may in the mean time be thought matters worthy of enquiry by others, more competent to experiment and investigation than myself, and I, therefore, would willingly resign them to any one who would undertake to investigate them. I shall probably find a few occasional hours sufficiently employed with the following, at present with me, more interesting objects.

4. In proceeding with my pathological enquiry, with the view to the laying a firm foundation for the internal treatment of cutaneous diseases, as always having more or less of a connection with the *primæ viæ* and system, I shall think it a material introductory consideration, to point out the different temperaments and constitutions, at the different periods of life, as being directly concerned with many species of them, and with probably the process of obtaining and regulating the animal heat. I think this object will further lead us to

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an enquiry of much consequence, to wit, the establishing just diagnostics between idiopathic and symptomatic affections of the skin, in as far as it becomes often a very desirable thing to know, when topical applications may be applied to some of them, with safety, and success.

5. The better also to understand, how cutaneous diseases are to be more safely and certainly cured by internal remedies, from their being connected either with the constitution at large, or with only the sympathetic irritability and connection between the internal and external extreme vessels of the circulating, as well as the absorbent, system, I shall carefully gather together the scattered opinions of late authors, on the specific action of medicines on the stomach and intestinal canal, and venture some few observations on them. This enquiry seems to me important, in as far as it will the better enable us to select and adapt our medicines to the cure of impetiginous diseases, as connected either with a general debility, or only a symptomatic sensibility of the system.

6. As also further connected with the medical, as well as chirurgical, treatment of cutaneous diseases, from my having already endeavoured to make it appear, that the irritability of capillary vessels depends upon their great proportion of muscular energy and excitement, I shall put together, in as brief a way as I can, the best opinions hitherto promulgated on the doctrine of muscular motion, or the action of the moving fibre, which will include the late discovery, from experiments on frogs, which seems to confirm an opinion often entertained, that the principle of muscular action depends upon the electric fluid.

7. After having taken up these different subjects in physiology, as introductory to the object of a DERMATO-THERAPEIA, I shall make an attempt at an improved nomenclological arrangement of cutaneous diseases, on the principle of dividing them into TWO CLASSES, to wit, ONE, to contain all those which have a constitutional connection with the temperament of the body, and a pyrexial state; and A SECOND, to
take

take in all those, which have their foundation solely in a particular organization and action of the skin itself, produced either from external causes locally acting on, or irritating, it, or from the simple sympathy, or balance of circulation, between the intestinal and cutaneous capillary vessels.

Each class will be divided into its different genera, founded on the supposition, that the different parts of the cutis vera, as well as its various internal and external appendages, are each liable to their specific diseases, either locally or constitutionally occurring, independent of any original morbid state of the fluids.

8. If the subject can be satisfactorily arranged, on some such nosological principle, I shall then endeavour to apply the different points of the preceding impetiginous system, as will best accord with, and seem supported by, the history and symptoms of each particular genus of disease; and I hope to be afterwards able consistently to recommend a suitable and successful

successful mode of practice, founded on the general pathology laid down in the present publication, and supported by a steady observation, and a large experience.

This will necessarily lead me to consult fully the latest systematic, or nosological, writers, as well as others, who may have recently paid attention to the subject, though they all may have adhered to the BOERHAAVIAN doctrine of the humoral pathology; and I particularly expect to derive many interesting facts and observations, from the learned work of that late and very copious author, ANN: CAROLUS LORRY, entitled, TRACTATUS DE MORBIS CUTANEIS, 4to. and published at PARIS, 1777. It is proper here to say, that I have not as yet received any assistance from it, not having thought it necessary to consult it, during the compilation of the present work.

The intelligent reader will at once see, that I have here engaged to undertake a very difficult and extensive task, for
which

which I may never have sufficient opportunity, either to prosecute, or to effect, with the necessary degree of satisfaction to my reader, or to myself.

He will, therefore, be so kind as to attribute it to these circumstances conjointly, if I should not be able to complete such an undertaking in any reasonable time; or in the time, that it is at present my wish to attempt it.

FINIS.

ADVERTISEMENT.

INTENDED to be prepared for press,
A SERIOUS ADDRESS TO THE PUBLIC,
on the importance of their knowing the
nature and origin of the diseases of the
human skin, and of their distinguishing
them by their different kinds, with the view
to secure them against the evil consequences
of an improper treatment of themselves.

POSTSCRIPT.

SINCE the preceding section was completed at the press, a coincidence of circumstances has given my mind a bias, to offer a few more practical reasons for supporting the efficacy of the oak bark, with a view to general utility. I had been originally led to consider, how far it would be useful in the sea-scurvy, from my experience of it, as a prophylactic to the septic tendency of the system, in the low, or nervous, fever, for observing which, my opportunities have not been small: and it is, I think, some justification of the propriety of my introducing here a few other remarks on it, connected with a putrid disease, that the scurvy and putrid fevers have been supposed so nearly related, in their leading corporeal phænomena, as to have induced DR. MILMAN, and others, to treat of them together, as admitting of

nearly the same pathological explanation, particularly as the disease in view is attended with exanthematous appearances.

My very recent successful adhibition of this vegetable production, in the cynanche maligna, or scarlatina anginosa, so convincingly imports to my mind the specific virtues of it, as a medicine, as well as the leading principle to be counteracted in that disease, that I hope my reader will not think his time ill engaged, with a few observations on that fatal disorder, and a short history of two such cases; and as I think the end of this object will be thereby best attained, I shall make free to premise a few general remarks, from the latest writers on the subject.

DR. CULLEN has reported the cynanche maligna to be, a very contagious and epidemic affection; and most generally prevailing among infants and young people; and also indiscriminately attacking all constitutions. He has further said, that it commences with considerable pyrexia, preceded by the usual symptoms of its accession

cession, which continues until gangrenous appearances of the fauces take place, sometimes to a considerable degree, when the symptoms of a putrid fever keep constantly increasing; and so rapid have all its virulent and morbid effects been, on some occasions, that many have died on the third day, but for the most part before the seventh.

The same important writer, in his account of the scarlet fever, has doubted, whether that disease be different from the cynanche maligna, from the latter having almost always the scarlet eruption, and the former almost always the ulcerous sore throat. But so various are the opinions of authors on the subject, that many have been disposed to think, that the scarlet fever was specifically different from the cynanche maligna, from its having been not unfrequently seen unaccompanied with the sore throat. CULLEN, however, has said, that he almost always saw the disease attended with the ulcerous sore throat, and as such it has been named by SAUVAGES the scarlatina anginosa; and though so often of

the putrid and gangrenous kind, and exactly fimilar to the cynanche maligna, yet CULLEN has left it as his opinion, that not only the fcarlatina of SYDENHAM, but the fcarlatina anginoſa of SAUVAGES, are different diſeaſes from the cynanche maligna. For his particular reaſons for ſo thinking I ſhall refer the reader to his FIRST LINES OF THE PRACTICE OF PHYSIC.*

From my own obſervations, and reflections, on theſe diſeaſes, I feel my mind moſt diſpoſed to view them, as only different modifications of the ſame ſpecific contagion, neceſſarily varying in its degrees, and the ſymptoms it produces, not only from ſome difference in the epidemic conſtitution of the atmofphere, giving riſe to it at different ſeaſons of the year, but, alſo, from the variety in the ages, and temperaments, of the different perſons attacked with it, on the ſame principle, that the ſmall-pox differs in its diſtinct and confluent forts.

In this view of the ſubject, may there not be, from one ſpecific miasma, a febris ſcarlatina

scarlatina benigna, or the scarlatina anginosa of SAUVAGE, and a febris scarlatina virulenta, or the cynanche maligna of CULLEN? For it has been observed, that the scarlatina generally, at the commencement of its epidemic reign, approaches, in some cases, very nearly to the symptoms of the incipient cynanche maligna; and their similitude is so great, that CULLEN has laid down a general rule only, for the treatment of them, namely, to be guided by the appearance of each particular case; leaving it to the judgement of the practitioner to determine, whether it is, or will be, the febris scarlatina, or the cynanche maligna.

Our modern systematic practice in these cases, in a few words, was, *First*, That as the cynanche maligna always shewed the septic tendency of the system, bleeding and purging were generally improper, though inflammatory symptoms would sometimes, at the first, appear considerable. He thought emetics, early in the disease, were of use; and he only recommended blisters to moderate the violence of the symptoms. His great dependance was on
antiseptic

antiseptic gargles and injections, and internal antiseptics ; especially the PERUVIAN bark in substance, from the first to the last.

Secondly,—On the scarlatina he speaks ambiguously, in respect to the use of the PERUVIAN bark ; and thinks it might often be entirely omitted, though it would not be prudent to do so ; and he has further observed, that, in this disease, there is no anasarcaous swelling of the body, after the scarlet eruption has subsided.

A late experienced writer on the scarlatina anginosa,* has recorded its great fatality among children in LONDON, in the year 1786, and has compared the eruption as very similar to the measles, which seemed proved by the familiarity giving rise to great error, in the bills of mortality for that year : and he has entertained an opinion, that it has often destroyed adults, under the appearance of being no more than a common fever. For a very copious history of its symptoms, and variations,

* DR. JAMES SIMS.

riations, from the summer, through the autumn, to the winter season, I must refer my reader to this learned author's very interesting paper, in the first volume of the MEMOIRS OF THE MEDICAL SOCIETY OF LONDON. It there appears, that the disease varied much, and that anomalous cases happened towards the close of the year. In such cases cordials frequently failed, and blisters seemed not to have even the slightest effect on the skin. The leading traits of DR. SIMS'S practice were the following.

He depended on the tincture of roses, with syrup of lemons, and some additional vitriolic acid, as internal antiseptics, which he advised to be taken every hour, or hour and a half, and he recommended brandy with a little water, as the most usefull gargle. He disapproved of blood-letting, strong purgatives, and sudorifics; and advised the efflorescence to be promoted, by the moderate warmth of the room. He thought rhubarb, so as to produce one motion a day, the best preventative; and he appears to have been of opinion, that the

PERUVIAN bark was usefull in the latter stages, but not in the beginning, of the disease.

Joined with the preceding opinions, and observations, of men of large experience, I should hope, that the following cases, and their treatment, will become the more interesting to the reader, and both support my opinion of the pathology of the affection, and of the *modus operandi* of the remedy, on which I *solely* depended, and which successfully removed the complaint.

The effect, which the preceding short account of the various symptoms, and treatment of these diseases, by the above writers, has, on my mind, is, that they appear to concur in establishing the disorder, as arising from, and as supported by, a septic cause; and that the destruction of this cause should form the principal indication, both of prevention and cure.

The violence of the pyrexia, at the accession and first stage of the complaint, which CULLEN has characterized as a synocha

nocha contagiosa, though, strictly speaking, the fynocha is not a contagious fever, only proves, in my humble opinion, the great alarm the system is put in, and the very powerfull exertions it feels called upon to make, with the view of overcoming, or expelling, the noxious miasma: and that the object of supporting the patient by cordials and tonics, as the first indication commonly laid down, is built upon a wrong principle; and the following it serves only to increase all the symptoms of pyrexia, at the same time, that it is badly calculated to counteract, and remove, the morbid disposition of the habit. With these sentiments I entered on the treatment of the following cases.

In the evening of the 27th of last *October*, I was sent for to the children of a perfumer, in PRINCES-STREET, SOHO; the son was seven years of age, and of the sanguineous temperament: and the nephew twelve, and of the florid and scrophulous temperament. The youngest had sickened on the 23d, and the eldest on the 24th, with the general symptoms of fever.

MR. CAMPBELL, apothecary, in the same street, was first sent for, on the morning of the 24th, to the youngest, for whom he directed an emetic, and a febrifuge aperient mixture; and in the evening he was called over to the eldest, who had appeared ailing several days, but then became suddenly and violently attacked with the accession of the fever, attended with great dejection of spirits, pains of the limbs, much trembling of the knees, and a deadly paleness of the countenance; and he complained much of pain of the head and back. An emetic was directed to be taken immediately, and an aperient draught early in the morning.

October 25. The youngest was very feverish, with the efflorescence appearing, and he complained of some soreness of throat, and some pain of the stomach. He repeated a gentle emetic in the evening, and took every three hours the mixt: camph: cum aq: ammon: acet: et pulv: cont: com: Both emetics were of ipecacuahna powder.

The fever of the eldest had much increased, the tongue had become dry, and the teeth much furred; yet the pulse
was

was thready and very frequent. The medicines had operated well. In the evening, he was still very feverish and flushed: a kind of delirium was noticed, marked by great perturbation, anxiety, and restlessness; and the eruption was now first observed on him, accompanied with considerable tumefaction and inflammation of the fauces. He took at night a saline draught, with four grains of the *pulv: jacobi*—and repeated them in four hours.

October 26. The youngest continued very feverish—and he had become very restless. The efflorescence had increased, and the throat was worse—but his hands bore not the marks of being particularly flushed, and his deglutition was not much affected: the mixture of yesterday was repeated.

The eldest was growing sensibly worse—and the mental irritation was increasing. The dec: of the PERUVIAN bark was now ordered—and in the evening the aromatic confection was added to it, to be taken every two hours.

October 27. The youngest was much the same in the fever and efflorescence, but the throat was growing worse. The de-

coction of the PERUVIAN bark, with a full dose of the tincture of the same, and some tincture of snake-root, was now ordered for him, every two hours.

All the symptoms of the eldest were increasing: the same mixture was continued for him: in the afternoon a blister was applied between the shoulders, and an enema administered. MR. CAMPBELL was of opinion, that there was now immediate danger.

Their drinks had been barley water, and barley water with lemon juice, the first two days, and afterwards very weak negus, strongly acidulated with lemon juice.

OCT: 27, h: 7, p: m. At this period I was called in. The situation of the youngest bore the marks of the inflammatory state of the system, with the fauces covered with large white floughs, and the efflorescence was now principally observed on the lower extremities. His fever had increased, since beginning the PERUVIAN bark in the morning, and he appeared to me very restless. But the situation of the eldest claims our particular attention.

He was lying on a small bed, in a confined corner of the uppermost room: his countenance expressed very great distress, and his cheeks were very deeply flushed, and edged by a line of a very dark hue, approaching nearly to black, in a very strongly circumscribed manner: the colour of them, and of his lips, was of the deepest crimson hue. The white of the eyes had the sanguineous blush, in a very evident degree, and they had a silly deadly glare with them, not properly expressing *delirium*, but that state, which DR. SIMS has called *desipientia*. Soon after being in the room, he raised himself on his knees with a tottering difficulty, and expressed great anxiety to evacuate the enema, which he had very lately received. The skin was cooled, and his pulse was hurried and feeble. The hue of the efflorescence could be seen on the skin of the body, of a brownish red cast; but round the knuckles, and elbows, were large purple coloured blotches. His respiration was natural. The teeth and tongue were very black and foul, and the mouth and fauces seemed loaded with so much of a mucous excretion, and so much obstructed

obstructed with it, that his utterance was very indistinct. I obtained a momentary sight of the fauces, with great difficulty. They were covered with party-coloured sloughs, the palatum molle was of a deep crimson colour, and the roof of the mouth was nearly covered with the white apthous appearances.

All these symptoms, together with the progress of the complaint, led me to think, that the septic state was the object to be counteracted; and that it was only to be done by those means, which would not, at the same time, increase the febrile irritation of the system. On this principle I directed the following plan to be pursued. The following decoction was immediately prepared.

℞ Corticis Quercûs pulv: crass ʒj

———— Winter: ʒj

———— Aurant: sic: ʒiſs

Aquæ ebullientis ℥iſs

Coque simul leni igne ad ʒxv. et cola, ut fiat decoctum more sequente utendum.

The

The eldest was ordered to take an ounce and a half of this compound decoction of the oak bark, with a drachm and a half of the succus limon: rec: and two scruples of the syrupus papav: albi, every two hours. I forbade the negus, and directed for his common drink, the rennet whey, with a small quantity of white wine added to it—He was also occasionally to gargle with a teaspoon-full of the following, added to his barley water, or to put a little of it sometimes into the mouth.

R̄ mell: rosæ ʒj

Spir: fal: mar: ʒj

M:

More supra-monito utend.

For the youngest I directed an ounce of the same oak decoction, with p: contray: comp. gr vij, nitri purif: gr v. vin: ant: gutt. v. et fyr; papav: albi ʒss, to be taken every two hours—He was only to gargle with plain barley water, and to drink the rennet whey without wine.

October 28, h. 9. a. m. They had taken their medicines very regularly. MR. CAMPBELL thought, that the eldest had much less of the mental irritation. The eyes were less
flushed

flushed—the cheeks were more florid—the hands and elbows not so dark coloured, but more of the crimson hue—the countenance more calm, and he seemed more composed—the pulse steady, but very frequent.—The youngest had much less of the febrile heat of the skin; and the efflorescence was going off, every where, with the usual desquamation. The fauces were still very troublesome to him. They were directed to continue the same medicines, and drinks, as ordered last night.

H. 8. p. m. The eldest was more restless than in the morning—and the mucous excretion of the fauces most distressing to him. The youngest was much the same. They took their medicines very regularly, and were ordered to continue them.

October 29. They had passed tolerably well through the night, with slight appearances of amendment in both. The cheeks of the eldest of nearly their natural appearance; but on his elbows, and knuckles, large vesications were forming, with the crimson hue changed into a florid redness. The youngest was less feverish. They were directed to continue the same medicines; the eldest as often as at first,
but

but the youngest every three or four hours : and each was to receive an enema in the evening : I requested to be informed, if they grew worse in the latter part of the day.

October 30, I did not hear from them last night, as MR. CAMPBELL thought them mending. This morning I found the eldest quite sensible, and he exerted himself very much in my presence to gargle his throat : —the marine acid had been occasionally used without barley water, so that it seemed to have excoriated his cheeks, and sides of his tongue. There was no remains of the efflorescence, but on the legs : his pulse was only 110 to-day, and regular. He had had no stool from the enema : I directed an aperient draught, and the mixture to be continued, with the addition of ʒss of lemon juice to each dose. The youngest was not so well this morning : he had a hurried pulse, and his eyes were flushed, and he was inclined to coma and restlessness—The clyster had had a trifling effect. I ordered an opening draught to be taken directly ; and he was, after its operation, to take the dec: cort: quer: comp: cum

3 G

succo

succo limon: rec: et fyr: papav: alb: in proportion to his age, every three hours.

October 31. The eldest continued to mend. The vesications on the hands and elbows discharged a fero-purulent fluid—the cuticle peeled off largely—and all appearance of the efflorescence about them began to disappear.—He continued sensible, with a less frequent pulse than yesterday.—The youngest was also much better;—the flush of the eyes was gone; and he was cheerfull. The mixtures, as ordered yesterday, were to be continued.

November 1st. Both of them recovering.—They took the above decoction a few days, with a smaller quantity of lemon juice, and one day without it, and no other medicines. On the 5th instant the eldest was free of fever, but had still a considerable ptyalism, with very troublesome floughs, and excoriations, about the mouth and tongue.

I cannot conclude these histories without acknowledging my obligation to MR. CAMPBELL, for the skill and attention with which he assisted me, in the management of the above patients.

The event of these cases leads me to hope, that the OAK BARK will be found, by future experience, preferable to the PERUVIAN bark, on many of these occasions; and well calculated, both from the pathology of the affection, as well as the modus operandi of the medicine, to prevent the fatality of this too frequent epidemic—The lemon juice is certainly entitled to its share of utility, as an antiseptic, on the above occasions, and assists to prove, at least to my mind, the justness of the indication of cure, on which I sat out.

I have been so often an unsuccessful prescriber of cordials and wine liberally, with the free use of the PERUVIAN bark, &c. as CULLEN has advised IT,* in instances of the disease not apparently more dangerous, than was the situation of the eldest of the above children, on the 27th of OCTOBER, that my mind is at last strongly impressed with the apprehension, that too much has been done in that way, and that the main object was not kept in view, to wit, the PHLOGISTIC OR SEPTIC PRINCIPLE OF THE COMPLAINT. The disease,

3 G 2

therefore,

* See Page 398 of the Postscript.

therefore, now seems to me to require a *specific remedy*, endowed with that power which is capable of counteracting the increasing danger to life, from the sedative and narcotic effects of SUCH A STATE OF THE SYSTEM: but I am afraid *such a remedy* will not easily be discovered; yet it will afford me much satisfaction, if my own future experience, as well as that of others, should confirm my opinion, of what ought to be the leading indication, in the treatment of the disease, and of the superiority of the OAK BARK over the PERUVIAN BARK, as an antiseptic in this GENUS of putrid diseases, aided, in the very bad cases, by the same virtue in the lemon juice.

It is a very common practice to employ the means of ebullition, for a length of time, to extract the virtues of medicines. It, however, becomes a question, whether this mode of preparation may be so well suited, to convey the medical qualities of the oak bark, or even of the PERUVIAN bark, to the system. There are certainly very good reasons, why we should be of opinion, that the infusion, of the oak bark particularly, is preferable to the decoction,

decoction, and such a preparation of it has been for many years used, in the practice of the WESTMINSTER GENERAL DISPENSARY. I shall, I think, more experimentally prosecute this enquiry, which has been passed over in silence by DR. CULLEN, who has only mentioned the decoction, in his remarks on the utility and exhibition of this medicine.

I should suppose it might be, sometimes, an improved way of giving the cortex *quercis* (which, by the by, has been incorrectly called by DR. CULLEN, in his TREATISE OF THE MATERIA MEDICA, cortex *querci*) by infusing it in the boiled decoction of the *canella alba*, orange peel, or any other article of the materia medica, with which it may be intended to be given.

Though the decoction succeeded in the preceding cases, I have thought it proper to inform my reader, of the probable advantage of the infusion, on account of the volatility of its medical virtues, when the circumstances of the case will permit the necessary time, for such a preparation of it. It is unquestionably best prepared by infusion in large quantities, and, therefore,
may

may become the preferable mode of using it as a marine antiscorbutic. There is ample room, however, for further observations on this subject.

Allow me to conclude with saying, that as I am often inclined to build much of my own reasoning, when at the bed-side of putrid disorders, on an *universal principle in the system generating animal heat by the skin*, from supposing that there is either an excess, or a diminution, of the ordinary state, or action, *of it*, I indulge a hope, that the prosecution of *that interesting subject* will be further elucidated by the late, as well as intended, experiments, to investigate the nature and use of animal electricity, in the animal œconomy ; and we may, in the end, render that *cutaneous principle* as important to the theory and practice of medicine, as was, in former times, HARVEY'S celebrated discovery of the CIRCULATION OF THE BLOOD.

FINIS OF POSTSCRIPT.

INDEX

TO THE

DERMATO-PATHOLOGIA.

	A	PAGE
ABLUTION, daily, of great importance to infants		152
Acid and alkali, their weight in Boerhaave's doctrine		8
Acrimony, the particular constitutional, scarcely ever known	— — — —	40
———— in the skin, when not in the blood	—	72
———— the hitherto prevailing principle of cutaneous disease	— — — —	93
Anatomy, of the skin, still imperfect	—	27
Ancients, opinion of the, on skin diseases	—	42
Animal life, how best supported	—	154
Anorexia, on what dependent	— —	103
Antimonial medicines, why at present so courted	—	6
Apostema, Cullen's definition of	—	60
Arterio-muscular pathology, of what import and extent	— — — —	1
Art of curing by expectation, what	—	5
Arteries, small, numerously furnished with muscular fibres	— — — —	49
————, large, why less muscular	—	127
Atmospheric air, effects of, doubtfully spoken of	—	187
Atony, and spasm, of capillary vessels, when most occurring	— — — —	102 - 116

B

Bad reports, how, remarkably aggravate sea-scurvy	—	146
Balance, between interior and exterior vessels, how constituting a vis conservatrix	—	55
———— of the capillary system, how affected	—	108
———— of muscular irritability, general	—	125
		Balance

Balance, of vessels, between the skin and cavities	—	161
——— between the pulmonary and cutaneous vessels		162
Boerhaave, the greatest systematic since Galen's time	-	7
Bulbs of the hair, what, and how complicated	— 36 -	37
———, how morbidly affected	— —	76

C

Cachexiælogia dermatica, meriting a place in nosology		2
Cachexiæ, general observations on Cullen's class	—	196
Cachochymy, its weight in pathology	— — 9 -	91
Cachectic, and debile, constitution, how prevented		153
Capillary vessels, universality of	— —	99
———, sympathy between	— —	101
——— circulation, how universally important	—	110
——— vessels, subject to atony, spasm, and paralysis		116
———, chiefly muscular	— —	116
Cause, the immediate, of cutaneous depravity	—	94
Chemical pathology, of what extent and weight	—	4
Children, why, most subject to cutaneous eruptions		88
Chronic eruptions, how only topical affections	—	44
——— debility, of cutaneous vessels, what	—	124
Circulation, how dependent on the health of the muscular system	— — —	49
———, how the sine qua non of life	— —	128
Cold, a frequent remote cause of eruptions	—	130
——— and miasma, how acting together	— —	131
———, acts topically with a sedative effect	— —	132
———, when operating by constriction	— —	132
Compages, of capillary vessels, constitutes the skin	—	49
Comparative anatomy, of what avail	— —	68
Convalescence, favours impetiginous disease	—	145
Copper, its deleterious effects on the skin	— —	170
Corporeal passions, cause impetiginous appearances	--	141
Corpus mucosum, and corpus reticulare, what	—	30
Crinial vessels, the effects of the, drying up	—	77
Cullen's apology for attempting a new system	—	10
——— opinion of cutaneous efflorescencies	—	44

Cullen's mistaken notion of impetiginous practice	—	65
Cullenian doctrine, where not free of the humoral pathology	— — — —	14
Cutaneous papillæ, form the sense of touch	—	32
————— affections, depend on state of muscular fibres		105
—————, when squammous, when pustular		115
————— circulation, varied by muscular irritability		117
————— diseases, why so difficult to explain, and so complicated	— — — —	192
Cuticle, on the origin and structure of	— —	29
—————, how serous effusions form under	—	79
Cuticula and rete mucosum, how intimately connected		31
—————, Monro's opinion of an internal	—	112
Cutis vera, or true skin, anatomy of	—	28 et seq:
—————, the strong, thick, universal covering of the body	— — — — —	31
—————, with its appendages, a most complicated organ	— — — — —	32
—————, how lost at the large orifices and apertures through it	— — — —	33
—————, why liable to its separate morbid affections		39

D

Dermato-pathologia, what	— — —	2
Dermatologia, how far it may be necessary	—	28
Death, itself considered as a stimulus to a muscle	—	50
Diagnosis of cutaneous diseases, why rendered difficult		38
Diagnostic rules, of importance in cutaneous inflammation	— — — —	62
Diarrhæa, why not attended with sympathy of stomach		109
————— imprudently checked causes pyrexial diseases		109
Diseased action, the immediate cause of impetiginous complaints	— — — —	96
Diseases, congenial with our nature	— —	164
Dispensatorium chirurgicum, why necessary	—	69
Drake's observation on cutaneous diseases	—	42

E		PAGE
Efflorescencies from idiosyncrasy of stomach	—	166
—————, their seat in the skin	—	167
—————, their idiosyncrasy particularly explained		173
Elephantiasis, an impetiginous disease	—	20
—————, Cullen's definition of	—	207
Emetics, nauseating doses of, how productive of sweat		175
Epidermitica, applied to a division of the subject	—	2
Epidermitical vessels, what, and liable to atony and palsy		114
Epidermis, analogous to cuticula, or scarf-skin	—	26
Epithelion, what	—	26
—————, of the internal parts, what	—	111
Erysipelas and erythema, of very different natures	53	85
—————, two species of, independent of erythema	--	56
—————, how produced by cold	—	133
Erythema and exanthema, considered as separate genera		52
—————, how connected with an internal epithelion		63
Extreme cold, how it may occasion death	—	136
Exudation, perspirable, how affected by debility	--	115

F

Fear, an impetiginous remote cause	—	137
—————, how acting by a debilitating operation	—	138
Febrile and cutaneous affections, when connected, when distinct	—	106
Fever, why admitting of a more connected doctrine than impetiginous disease	—	191
Flavedo cutis, remarks on the	—	204
Fluids constitute the greatest portion of the whole body		49
Franibæsia, an impetiginous disease	—	20
—————, Cullen's definition of	—	208

G

Gangræna, as characterized by Cullen	—	61
General treatment, best for children's cut: complaints		41
Glandulæ sebaceæ, their seat and connection with skin		34
—————, improperly called sudorificæ	—	34

Glandulæ

DERMATO-PATHOLOGIA. 419

PAGE

Glandulæ sebaceæ, most numerous in particular places	35
—————, some of them said to be com-	
pounded — — — —	35
———— piliferæ, what — —	37
Good reports remarkably benefit the sea-scurvy —	147

H

Habitus depravatus, where still admitted by Cullen -	197
Hair, an appendage to the cutis vera — —	36
——, how nourished — — — —	76
Haller's vis insita musculi exemplified by vomiting —	120
Healing art, to be more distinct in its several branches	66
Herpes, Cullen's definition of — —	209
Hoffman, when he reigned, and what his principles	7
Howard's, the philanthropic, remarks on uncleanness	151
Human body, how consisting of two surfaces —	110
Humidity increases the cutaneous effects of cold —	134
Humoral pathology, what, and when first founded	3
Hunter's opinion of syphilis, observations on —	201
———— cutaneous inflammation —	54
Hydraulic machine, human body compared to an —	48
Hydropic affections, how caused by suppressed di-	
arrhæa — — — —	109

I

James's fever powder too often indiscreetly used —	213
Icterus, why badly arranged in Cullen's nosology —	17
——, Cullen's definition of, with author's re-	
marks — — — —	203 - 204
Idiosyncrasy of stomach, not to be wondered at —	165
——, sometimes sudden, sometimes slow —	168
——, when sudden affects papillæ pyramidales	169
——, when slow, affects rete mucosum and	
cuticle — — — —	169
Impetiginous affections caused by a cutaneous action	44
————, why improperly classed by	
Cullen — — — —	46

Impetiginous affections, why properly belonging to the		
Locales — — — —	—	47
Impetigines, observations on Cullen's order	199 -	208
Inflammation, cutaneous, the division of	—	51
Ingesta, noxious, how productive of leprous affections		170
Insensible perspiration, how affected by debility	—	115
Intermittents, how accompanied by cutaneous eruptions	— — —	119 - 145
Intumescencia, observations on Cullen's order	—	198
Irritability, of capillary vessels, very great	—	116
Irritable parts, the most, why soonest affected	—	143

K L

Lepra, an impetiginous disease	—	—	20
———, Cullen's definition of	—	—	208
Leprous and herpetic affections, how united	—		77
——— affections from idiosyncrasy of habit	—		169
Local inflammatory affections ill placed in Cullen's synopsis	— — —		58
Locales, observations on Cullen's class	—		209

M

Marcores, observations on Cullen's order	—	—	197
Mechanical philosophy, its extent and use	—		3
Membrana, adiposa, et cellulosa, what	— —		34
Menfes, how the want of the, disposes to eruptions			159
Menstruation, how dependent on the capillary system			160
Mercurials, the use of, prædispose to eruptions	—		145
Miliary eruptions, how caused	—		75
Milman, Dr. his theory of scurvy	—		21
———, in what the author agrees with Dr.	—		23
——— differs from Dr.	—		24
Mind, how affections of the, increase impetiginous complaints	— — —		145 - 146
Monro's opinion of a cuticle of the primæ viæ	—		112
Moving fibres, debility of, when general	—		125
Muscular pathology, what	—		21

Muscular fibre, how the seat of scurvy	—	22
——— fibres constitute the greatest part of the solids of the body	— — —	49

N

Nature, the doctrine of, what	—	4
Nature curing diseases, not judiciously exploded by Cullen	— — —	5
Nausea, from constriction of vessels	—	104
Nervous and muscular excitement, how connected	—	186
Nosology, the present melancholy state of it	15 —	19
Nourishment, scanty, exposes to eruptions	—	146

O

Obstruction of vessels, the proximate cause of cutaneous disease	— — —	181
Oily liniment of skin, whence derived	—	36
—— applications aggravate cutaneous eruptions	—	88
——— when useful	—	89
Organization, of arterious system, beautiful	—	126

P

Papillæ pyramidales, what	—	32
———, how affected by idiosyncrasy	—	169
Parenchyma of the true skin, what	—	31 — 34
Parts, most exposed to cold, soonest affected	—	134
Passions of the mind, how, cause impetiginous appearances	— — —	140
Pemphigus, a rare disease, and what	—	81
———, sometimes arising from idiosyncrasy of skin	— — —	82
———, its different species, what	—	83
Peruvian bark, why it fails and disorders	—	6
Perspirable fluid, how affecting the bulbs and glands	—	78
———, how alone occasioning eruptions	—	80
———, how varying the cutaneous eruption	—	81
——— vessels, how morbidly affected	—	79
Pharmacopæia Londinensis, remark on	—	68

	PAGE
Phlogosis, or phlegmonic inflammation, what	— 57
———, its division into internal and external	— 58
———, Cullen's definition of, and its two species	59 - 60
Phlyctenæ, or vesiculæ, how formed	— 84
Physiology of the skin, still imperfect	— 28
Plaisters, &c. how provoking cutaneous eruption	80 - 87
Plethora, its application to pathology	— 9 - 91
Proximate cause of cutaneous disease hitherto mistaken	91
———, not well applied to parts concerned	92 - 93
———, the best ground for the	— 95
———, the author's opinion of the	— 148
Psoa, Cullen's definition of	— 210
Public, the, cautioned against ill treating themselves	211
Pus, the product of suppurative inflammation	— 61
Pyrexial affections of the stomach, what	— 102 et seq:
Pyrexia hectica, how connected with cachexiæ	— 196

Q R

Rete mucosum, its origin and structure	— 30
—— malpighianum, what	— 30
Resolution of inflammation, what	— 60

S

Scurvy, attributed by Cullen to putrid ingesta	— 20
———, a disease of the capillary vessels	— 24
Scorbutus, very properly an impetiginous disease	— 20
———, Cullen's definition of, with author's remarks	205
Scrophula, why not an impetiginous affection	— 16
———, Cullen's definition of, with author's remarks	199
Scrophulous temperament, how best counteracted	154
Sebaceous glands, how morbidly affected	— 73
Sedative effects of impetiginous remote causes	— 122
Sedentary life, the, causes eruptions	— 145
Signs of impetiginous debility, why unnoticed	— 156
Simple solid, disease of, Boerhaave's fundamental doctrine	— 8

Skin, diseases of the, too often thought of chirurgical importance only	—	—	—	1
——, a sound, the spring of health	—	—	—	153
Slothfulness, unfavourable to an healthy skin	—	—	—	145
Solidum vivum, overlooked by Boerhaave	—	—	—	8
Sphacelus, the third sequela of phlogosis	—	—	—	62
——, Cullen's definition of	—	—	—	63
Spirituuous liquors, how, promote cutaneous eruptions	—	—	—	155
Stahl, the æra of his reign	—	—	—	4
Stahlian doctrine, not wholly to be laid aside	—	—	—	5
State of secretion, dependent on secreting organ	—	—	—	72
Succus gastricus, how affected by opiates	—	—	—	176
Summary of the new impetiginous pathology	—	—	—	184
Sweat, how it may occasion eruptions	—	—	—	74
Symptomatology, hitherto imperfect	—	—	—	89
Sympathy between stomach and skin, how explained by Cullen	—	—	—	100
——, how by the author	—	—	—	101
Syphilis, why not an impetiginous affection	—	—	—	17
——, Cullen's definition of, with author's remarks	—	—	—	200
System of small vessels liable to specific local diseases	—	—	—	107

T

Temperament varies the cutaneous affection	—	—	—	118
Theory, the new, why unavoidably complicated	—	—	—	190
Thompson's treatise on the scurvy, remarks on	—	—	—	25
Tinea capitis, how produced	—	—	—	77
——, Cullen's definition of	—	—	—	209
Trichoma, an impetiginous disease	—	—	—	20
——, Cullen's definition of	—	—	—	208
Trotter's first opinion of the scurvy	—	—	—	20
True skin, a principal emunctory of the body	—	—	—	50
——, a most important organ, and seat of the proximate cause	—	—	—	182

	PAGE
V	
Van Swieten's case of idiosyncrasy of the stomach	167
Variola, how explained by Cullen — —	85
———, its different species how explained by the author — — — —	86
Vascularity of the skin, very great — —	38
Vascular sympathy depends on muscular irritability	117
——— atony attends cutaneous eruptions — —	123
Ventricular epithelion, how affected — —	174
——— vascularity affords the gastric juice — —	177
Verdigris, how causing leprous affections — —	171
Vesications of the pemphigus vary much — —	82
Vessels of the stomach most readily affected — —	178
Villous coat of stomach and the cuticle, how analogous	178
Virus, what, and how it may locally act — —	43
Vis, conservatrix, and vis medicatrix, terms of very ancient date — — — —	5
Vis conservatrix salutis, what — —	172
Vomiting, the re-action of the stomach and muscular system — — — —	104

U

Uncleanliness aggravates diseases of the skin — —	88
———, how it excites impetiginous complaints	151
Universality of capillary vessels — — — —	98 - 108

W

When cutaneous diseases may be treated externally	212
---	-----

X Y Z

I N D E X

TO THE

A P P E N D I X.

A	PAGE
ABSOLUTE heat, the element of fire	— 222
———, an elementary principle	— 230
———, how deficient in scurvy	— 341
Absorbents, why too little noticed before	— 218
———, as conductors of animal heat	— 222
Absorbing principle, importance of an	— 336
Absorption, in lungs, attempted to be explained	— 262
———, through the coats of vessels, two-fold	— 266
Acetous acid, why it cannot cure scurvy	— 327
Acids, in scurvy, do not weaken the stomach	— 307
———, why all, are not equally antiscorbutic	— 326
Action, of medicines, specific, why important to be known	— — — 387
Air, remark on the mode of its acting on the blood	240
———, and exercise, how the want of, cause scurvy	— 337
Alps, remark on the scurvy of the	— — 312
Analogy, between the heat of the atmosphere near the skin, and burning candle	— — 245
———, between the means of purifying water, and the animal body	— — — 357
Animal heat, a cutaneous generation of, not before noticed by writers on the subject	— — 221
———, caused by chemical elective attraction	232
———, the principal facts supporting	334 et seq:
———, its mode of action on the blood	240
———, how generated by the skin	— 242
———, how connected with the electric fluid	262
———, why becoming of medical importance	383

	PAGE
Animal respiration, connected with animal heat	— 222
<i>Antecedents</i> of scurvy, remarks on the <i>term</i>	— 294
Antiscorbutic herbs, how acting by elimination	— 320
Antiscorbutics, several valuable, mentioned	— 360
Arterious blood, more heat in, than venous	— 228
Arterio-muscular irritability, a striking feature	— 351
Atmosphere, influence of the, on the skin	— 219
Atmospheric cold, how noxious to animal heat	— 277
Atony, spasm, and re-action, connected with a cutaneous generation of animal heat	— — 276
——, prædisposes to sea-scurvy	— — 295
Attraction, through coats of vessels, improbable	— 264
—— between the lymph of the blood, and the atmospheric air, more probable	— — 264
—— the flesh of beef and sea salt, what	302
Author's apology, for prosecuting the subject	217 - 259
Author not bigotted to any particular doctrine	— 260

B

BERWICK, curious circumstance on board the	— 364
Bewley, Mr. his explanation of the accension of phosphorus	— — 241
Blane, (Dr.) his theory of scurvy	— — 301
Blood, contains more absolute heat than water	— 224
——, facts supporting the superior heat of the blood	224
——, in the lungs, absorbs heat from the air	— 230
——, in circulation, imbibes phlogiston from the system, and emits heat	— — 232 - 233
——, why it requires cleansing in circulation	256
——, when præternaturally saline	— — 290
——, why not putrid in sea-scurvy	— — 299
——, colour of the, most changed in scurvy	315 - 317
—— how accounted for	— 317 - 343
——, how varying, by vital air	319 - 343
Blood's attraction to inflammable air	— — 280
Blood and air, how in contact, in the lungs	— 263

APPENDIX.

427

PAGE

Bodily exercise, how increasing animal heat	—	237
Bones, of salted meat, how decaying	—	305
Burning, of the hands and face, explained	—	246

C

Candle, observations on a burning	—	245
Charcoal, observations on burning	—	252
Citric acid, nature of the	—	323
———, restores vital air to the blood	324 -	343
———, singular action of the	—	326 - 343
———, how best preserved	—	362
Citric, specific action of, and other acids	—	361
Cold animals, observation on the heat of	—	235
—— stage of intermittent fever, explained	—	237 - 279
Combination of pure air and phlogiston, what	—	285
Constitution, when not liable to two diseases	307 -	365
Corpulence, favours the ravages of scurvy	—	306
Crawford, Dr, his specific opinions on animal heat	{	233 248
———, his opinion of cold regulating animal heat		236
——— of the use of the spleen and		
lymphatic glands	—	253
Crawford's Dr. last edition, observation on, and a		
quotation from	—	249 - 250
Cullen's principle for a new system of physic	—	261
——— observations on the oak bark	—	375 et seq:
Cutaneous absorbents, numerous and very irritable		220
——— eruptions connected with animal heat	—	221
——— inflammation, Crawford's explanation of		238
——— functions, important influence of the	—	239
——— generation of animal heat	—	242
Cuticle, how formed from the perspirable fluid	—	265
Cynanche maligna, Cullen's observation on	—	394
———, his practice in the	—	397
———, cordials and tonics, why hurtful		
in the	—	401

	PAGE
Cynanche maligna, cases of, cured by the	OAK
BARK — — — — —	401 et seq:
—————, the principle of the disease —	411
—————, what its specific remedy should be	412

D

Debility, in scurvy, of a very singular nature —	310
Dephlogisticated air, of the purest kind —	227
Dermatologia Nova, how connected with animal heat	262
—————, how connected with scurvy —	296
Dermato-therapeia, when meriting fuller consideration — — —	383 - 388
Difference between absolute and sensible heat —	223
————— Atmospheric and respiratory air	225
————— of heat, in atmospheric and fixed air —	227
Doctrine, application of, how made to cutaneous disease — — — —	389
Du Choul, Io. his observations on the oak bark —	374

E

Earth bath, observation on, in scurvy —	366
Emaciation, not a symptom attendant on scurvy —	305
Eruptive diseases, why most natural to man —	349
Erysipelas, how connected with animal heat —	270
Erythema, how connected with the same —	270
Essence of wort, observation on — —	355
Evaporation, how affecting animal heat —	235 - 237
Exanthemata, definition of Cullen's order —	349
Exhalation, effusion, and absorption, what —	346
External air, importance of, to animal life and heat	364
———— matters, how deranging the cutaneous process	274
———— surface alone, subject but once to the same disease — — — —	350

F

Farinaceous diet, not always hard of digestion —	304
Febrile diseases, how connected with animal heat —	385

APPENDIX.

429

PAGE

First passages, how connected with noxious ingesta	—	347
Fixed air, how connected with scurvy	—	300
Fluids, when primarily concerned in impetiginous diseases	— — — —	261
Flushing, of the hands and face, explained	—	246 - 247.
Frogs, allusion to the late experiments on	—	362

G

Good news, effects of, in scurvy	—	—	313
Goodwyn, Dr. E. his experiments on blood	—	—	318
Guinea coast, why the smaller vessels succeed the best on the	— — — —	—	367

H

Heat, a sensation of the mind	—	—	223
—— is contained in all bodies	—	—	223
——, its common properties	—	—	223 - 224
——, a substance, and not a quality	—	—	249
——, how a stimulus to the system	—	—	342
Heat of skin, when increased by friction, explained	—	—	244
——, increase of atmospheric, near the skin, explained	—	—	245
Heat and phlogiston, opposite principles in nature	—	—	230
Humoral pathology, not likely to stand its ground	—	—	333
Hunter's, an opinion of, explained by animal heat	—	—	271

I

Infusion of malt, observation on the	—	—	355
Juice of lemon, destroys the redundant phlogiston	—	—	344
—— ———, and restores absolute heat to the system	— — — —	—	344
—— ———, sometimes an external antiscorbutic	—	—	363
—— ———, its use in the cynanche maligna	—	—	411

K L

Land-scurvy, case of a fever	—	—	321
Limes, and lemons, of wonderful efficacy in scurvy	{		311
			316
Lind, Dr. his theory of scurvy.	—	—	300
			Lips

	PAGE
Lips and face, how affected in scurvy — —	316
Llandaff, bishop of, his remarks on the oak bark —	378
Longings for acids, remarkable in scurvy —	322
Lorry, his "tractatus de morbis cutaneis," when to be fully noticed — — —	390
Lymphatic glands, Crawford's opinion of the use of the — — — —	253 - 254
—————, remarks on Crawford's opinion of the use of the — — —	254 - 255
—————, author's opinion of the use of —	257
————— vessels, why numerously furnished with valves — — — —	258

M

Muscular fibre, action of, why meriting future notice	388
———— motion, connected with animal heat —	275
———— pathology, why a good principle in medicine — — — —	348

N

Naval means, of preventing scurvy, hitherto imperfect	372
Nitrous acid, a constituent principle of atmospheric air — — — —	241
Nofology of cutaneous diseases, when and how to be attempted — — — —	388

O

OAK BARK, a new marine antiscorbutic —	371 et seq.
————, author's experience of the —	373 - 376
————, specific operation of the, explained —	373
————, authorities for recommending the —	374
————, superior to the Peruvian bark —	377 - 411
————, its chemical properties —	378
————, its volatility, very great —	379
————, its mode of exhibition —	380
————, when useful in infantile diseases —	381
————, further remarks on the —	393 et seq.
————, best prepared for medical use by infusion	412
Object,	

APPENDIX.

431

PAGE

Object, of the author's reflections on sea-scurvy	{	292
		370
		&c.
Objection, Trotter's, to Cullen's definition of scurvy		292
One scurvy, author's opinion accords with their being		
but	— — — — —	335
Oxygene (<i>See vital air</i>)	— — — — —	

P

Pains, attending sea-scurvy, like venereal	—	295
Partial heats, hectic and nervous, how explained	—	239
Passions, depressing, provoke sea-scurvy	—	295
Perspirable acrimony, how arising from animal heat		271
Perspiration regulates animal heat	— —	236
————— generates animal heat	— —	242
————— forms a chemical process with the air	—	249
————— great, how the product of the atmosphere		284
Pertussis, author's observation on the	— —	349
Peruvian bark, of no benefit in scurvy	—	310
Phlegmonic inflammation, how connected with animal heat	— — — — —	272
Phlogistic process of the system, observation on	—	281
Phlogiston diminishes the heat of bodies	—	228
————— is contained in all parts of the blood	—	240
—————, its sedative effects on the habit	—	341
Phlogiston's attraction, observation on, to pure air		282
Phosphorus, spontaneous accension of, explained		241
Prædisposing causes, not well distinguished	—	294
Proximate cause, Trotter's, only the therapeutic principle	— — — — —	344
—————, author's, supported by foreign practice	— — — — —	365
Pure vital air, an eulogy on	—	328
———— water, the best preventative of scurvy	—	356
Putrefaction, how vegetable and animal, differ	—	299
Putrid fevers, why heat greater in them than others		238

Putrid,

	PAGE
Putrid, how the term, ill applies to scurvy	— 298
—— water, as baneful as putrid animal matter	— 357

Q

Question, concerning the putrefying of salted meat	302
Quercûs cortex (<i>See Oak Bark</i>)	— —

R

Reddening of the skin, how connected with atmospheric heat	— — — — 278
Respiration, separates heat from the air	— 230
—— ——— phlogiston from the blood	— 231
—— ——— promotes the absorption of heat	— 231

S

<i>Salt, taking on the</i> , meaning of	— — 302
Salted meat, the principle cause of scurvy	— 339
——, how affecting the digestive organs	— 340
Scarlet fever, Cullen's observation on	— 395 - 398
——, and cynanche maligna, author's opinions of the	— — — 396 - 400
Scarlatina anginosa of Sauvages, what	— 395
——, Dr. Sims's observations on	— 398
——, his practice in the epidemic of 1786	— — — 399
Scorbutic affections, how connected with animal heat	268
—— diseases, difficulty of explaining	— 334
—— habit, the term, not wholly fanciful	— 297
Scorbutics, blood of, darker than in others	— 299
Scrophulous temperament, how connected with animal heat	— — — — 267
Scurvy, hitherto explained by a chemical pathology	298
——, Trotter's new opinion of	— — 308
——, how little affected by season and climate	— 309
——, Trotter's conclusion on the	— — 314
——, never produced by prædisposing causes alone	— — — 330 - 338
——, how appearing under various modifications	331
Scurvy,	

APPENDIX.

433

PAGE

Scurvy, how arising from a diseased action of vessels	345
———, rigidity of muscles in; explained	361
Sea-diet, sometimes the sole cause of scurvy	310
———, alone modified by recent vegetable matter	313
———, not altered by operation of remote causes	313
———, strictures on the salt of the	301
———, means of preventing the ill effects of	352
———, alterations in the, proposed	358 - 359
Sea-scurvy, causes of, well known, but not guarded against	368
———, Trotter's definition of	292
———, Cullen's definition of, supported by the author	293
———, unknown, where vegetable-matter abounds	295
Sensible heat, how produced by the circulation	232 - 233
Skin, of the new-born infant, observation on the	275
———, pores of the, how affected in the sea-scurvy	296
Slave trade, causes of scurvy in the	366
Small-pox, its varieties connected with animal heat	273
Sour-kROUT, observations on, as used at sea	353
Spleen, an opinion on the use of the	253
Stomach, not much affected in scurvy	305

T

Temperament, importance of well considering the	386
Tendency, of a cutaneous theory of animal heat	286
Therapeutic principle, mistaken for proximate cause	291 338 344
Trotter, Dr. his manner of quitting the subject	325
———, where at a loss to explain scurvy	329
———, his remarks on the prevention and cure	330
———, address to him as surgeon of the Duke	368

V

Valves, why numerous in the lymphatic vessels	258
Variola, how connected with animal heat	273

	PAGE
Vascular, superiority of, over the nervous, system —	350
Vegetables, want of recent, the cause of scurvy 309 -	338
———, most wanted, where the scurvy is most fatal	315
Vegetable, analogy of, to animal kingdom —	384
Veins, why performing the office of pulmonic absorption — — — —	266
Venous blood, less heat in, than in arterial —	228
——— of the system, observation on the —	256
Ventilation, universally prevents putrefaction —	357
Vis vitæ, why most affected in scurvy —	306 - 348
Vital solids, concerned in respiratory absorption —	232
Vital air, how affecting the colour of the blood —	319
———, a component principle of vegetables 319 -	323
Vitriol, elixir of, observation on the —	654
Volatility, of the oak bark, great —	379

U

Uncleanliness, how connected with animal heat —	279
Union, of pure and inflammable air, observation on the	283

W

Warmth, why greatest from light covering, explained	246
Water, how the product of pure and inflammable airs	283
Wax, observation on burning — —	252
Winter's bark, observation on the — —	381

X Y Z

THE END.

CORRIGENDA

ALTERA.

PREFACE, page 13, line 20, for I HAVE, read THE AUTHOR
HAS.

At the following Pages, viz. 87, 242, 247, 270, 276, 278,
and 279, for EXHALENT, read EXHALANT.

Page 98, line 6, for DISEAES, read DISEASE.

— 188, — 4, for ATTENDANT, read ATTENDENT.

— 132, — 5, for PREUMATIC, read PNEUMATIC.







